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THE RAILWAY GAZETTE
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Irish Government Receives Milne Report

THE report by Sir James Milne on the position of rail, road, and canal transport in Eire, was presented on December 14 to Mr. D. Morrissey, Irish Minister for Industry & Commerce. Said to run to 300 pages of typescript, it is a comprehensive survey on which the Government has undertaken to determine its policy in relation to Coras Iompair Eireann, the Great Northern Railway (Ireland) and the Grand Canal Company, the three principal public carriers, and on general public policy as to road-rail co-ordination, level of fares and rates, control of private operators, and allied issues. The report was handed personally to the Minister by Sir James Milne who, on the same evening, was entertained by the Government at Iveagh House, headquarters of the Ministry for External Affairs. Mr. J. A. Costello, Prime Minister, with Mr. Morrissey and other Ministers, attended. With Sir James Milne were some of the British transport officers who had assisted him in his inquiry, and the General Managers of the Irish transport companies also were invited. It is stated in Dublin that Sir James Milne, on presenting his report, intimated that he would not take the substantial fee which had been offered to him, but would ask that his report be considered as his contribution to the advancement of transport in the country of his birth. He was born in Dublin, where members of his family are still resident.

* * * *

Railway Passenger Services Debate

In the House of Commons on December 16 there was a short debate on railway passenger services. One member suggested that sufficient use was not made of cheap ticket facilities in an endeavour to arrest the drop in passenger traffic receipts. Another made reference to timekeeping, and Mr. James Callaghan, Parliamentary Secretary to the Ministry of Transport, in his reply strenuously defended the Railway Executive. He gave a long list of cheap fare facilities which have been restored since the railways were nationalised, and he also explained that any increase in fares will not be a matter for the Minister but for the Transport Tribunal on an application by the British Transport Commission and justified in public hearings. Mr. Callaghan said that the percentage of express passenger trains arriving on time or up to five minutes late in the four weeks to October 4, 1947, was 52·9 per cent. In the four weeks ended October 2, 1948, the percentage was 65·3. For other passenger trains the similar percentages were 86·7 and 91·6.

* * * *

Railway Staff Redundancy

In a recent issue of the *Railway Review*, the organ of the National Union of Railwaymen, a warning is given that under nationalisation of railways staff redundancy will arise. It emphasises that all the available signs point to the fact that there must be considerable redundancy if there is to be an integrated transport system. It also points out that the transport service has developed from more than 150 private railway companies and countless uncontrolled other transport services, and it asks if the trade union system of organisation has been or is being brought up to date. In the past it has suffered from a multiplicity of unions, often dissipating energy and influence by unprofitable inter-union conflicts. The *Railway Review* admits, too, that in the past unions have failed lamentably at times to face the problem of redundancy. It suggests that now that four executives deal with and employ practically the whole of the transport staffs, it should be possible for the various unions to get together and settle amicably which union should cater for which branch of the industry.

* * * *

British Transport Joint Consultative Council

The British Transport Commission has announced that, after consultation with its Executives, and by agreement with the principal unions, it has decided to establish a joint body to be known as the British Transport Joint Consultative Council. This will consist at its inauguration of the Members of the Commission, with appropriate Member representatives from the five Executives, and representatives of the National Union

of Railwaymen; Associated Society of Locomotive Engineers & Firemen; Railway Clerks' Association; Transport & General Workers' Union; and Confederation of Shipbuilding & Engineering Unions. The purpose of the council is to provide, by regular meetings, opportunity for the exchange of information and views on matters of common interest in relation to inland transport and the activities of the British Transport Commission and its Executives, not being questions of wages or conditions of service or otherwise coming within the scope of the established machinery of negotiation, or matters dealt with or to be dealt with by any statutory committee. The inaugural meeting will take place early in the New Year.

* * * *

Overseas Railway Traffics

At the end of the fiftieth week of the current financial year, Antofagasta (Chili) & Bolivia traffics were £540,200 above those for the equivalent period in 1947. During the fortnight ended December 12, receipts were £57,150 and £60,610, and made a total advancement of £21,796; on the aggregate Antofagasta now total £2,754,980. Paraguay Central receipts amounted to G245,897 in the two weeks under review, when further increases of G44,086 and G49,141, brought the total improvement for 23 weeks up to G936,009, at G2,387,867. Declining traffics continued on the Leopoldina, so that by December 11, the aggregate since January 1, was down by £496,931, compared with last year, when receipts stood at £3,253,612. Leopoldina sustained declines of £8,997 and £10,481 in the fortnight under review, with traffics amounting to £51,410 and £50,191. Receipts on the Costa Rica Railway, during October, were £32,228, and though they show a decline of £2,750 for these four weeks, traffics to date are up by £15,796, with a total of £143,847 for the 18 weeks.

* * * *

Organisation of Departments, British Railways

An article in our December 17 issue gave in detail the new organisation of the Motive Power Department of British Railways under the standardised arrangements recently approved by the Railway Executive. After considering the advantages and disadvantages of the various types of organisation the Executive decided that the motive power organisation should be given full departmental status. It was felt that the psychological effect on this extensive section of the railway organisation having full and direct responsibility as a department under its technically qualified officers would have a beneficial effect on the conduct of motive matters at all levels. Elsewhere in this issue, we give the new standard organisation for Mechanical & Electrical Engineering, which follows closely the organisations of the Executive itself. It will be noted that there is a severance between Locomotives and Carriage & Wagons at Executive level and in the Regions. On account of size alone it is essential under nationalisation to separate these activities. In the Regions there is to be no split between Mechanical & Electrical Engineering, which is consistent with modern trends, while at Executive level the Member for Mechanical & Electrical Engineering has a joint responsibility with the Member for Operating as shown on the chart. A co-ordinating Officer known as the Executive Officer (Design) has been appointed.

* * * *

Harmful Effects of Steel Proposals

Last week, the British Iron & Steel Federation issued a statement on the effects of the Government proposals for the nationalisation of iron and steel. This pointed out that the Bill, rather than being a nationalisation measure as commonly known, provides instead for the acquisition by the Iron & Steel Corporation of the shares of 107 firms with 250 subsidiaries. This would mean that a considerable proportion of the industry would remain outside its scope and that the corporation would have an interest in a large number of industries beyond the confines of iron and steel. The whole theme of the Government case on steel—that industrial organisation, even when controlled by a public body such as the Iron & Steel Board, was not sound—destroyed the very basis of broad industrial planning by the Government and any confidence there might have been that there could be a satisfactory basis of collaboration between the Government and industry. It was, moreover, strange that the Government, which had exercised so close a control over prices in recent years, should propose to delegate unusual powers to a monopoly producing corporation. Those companies in the corporation would be tendering for contracts in direct competition with private firms which would have to obtain their steel from the corporation.

* * * *

Railway Development Plans in Switzerland

The ten-year programme of development outlined on page 720 of this issue is without doubt the largest which the Swiss Federal Railways have ever announced. The major part of the programme, of which the total annual cost will be fr. 190,000,000, or about £11,000,000, is devoted to way and works, particularly improvements and extensions to important stations and their approaches and doubling single-line sections which at present form a bottleneck in international and cross-country routes. The financing of so huge a project is a special problem, and it is proposed to solve it by new legislation. The part of the programme—some fr. 43,000,000—which cannot be financed out of the Federal Railways account and depreciation reserves, will be paid for by the Confederation, and cantons and municipalities concerned. Presumably the new Railway Act now being framed will contain clauses compelling local authorities to contribute towards the cost of railway improvements in their area; until now their contribution has been voluntary. Certainly, in a land where town councils spend so much in improving amenities for visitors, they should not begrudge a share of the cost of railway improvements which are likely to benefit their tourist traffic. Again, industrial centres should bear a due proportion of expenditure on alterations to tracks and yards which will provide them with better freight train services.

* * * *

Value of Higher Railway Education

At present, when the merits of a general education are so widely appreciated, it is important that there should be a proper realisation of the need for higher vocational training. In his recent paper to the Railway Students' Association, Mr. H.F. Sanderson has made known the methods and scope of the educational facilities at British Railways Faverdale Commercial School, and in defining the objects of the course available, he has established something more than a justification of their existence. The intention at Faverdale was not to teach the students details of their daily work but rather to develop the enquiring turn of mind so that they could reason out how best to deal with the commercial problems with which they were confronted. On the much debated subject of examinations, Mr. Sanderson said that they provided an incentive to greater effort and an opportunity for distinction; a great premium was placed on memory, but, in fact, efficiency often would be improved by a better memory and he was convinced that taken with performance generally during the course, examinations gave a reasonably reliable basis for assessment of ability.

* * * *

Snow Clearance on Railways

The paper on railway snow clearance, which was read on November 18, before the British Glaciological Society, by Mr. W. K. Wallace, the former Chief Engineer of the L.M.S.R., gave rise to a number of interesting questions. Several speakers wondered why the rotary snow plough was not used in this country, and Mr. Wallace explained that it had limitations, both practical and economic. The comparative mildness of most winters in Great Britain was one reason why heavy capital expenditure on such ploughs would not be justified. The experiments with aeroplane jet engines in clearing snow-bound tracks had not given the results anticipated, and under some conditions that arrangement was quite useless, as it merely blew holes in the obstruction. In the Highlands of Scotland, where winter conditions generally involved much snow, clearing arrangements are something to which the staff regularly is accustomed and, in consequence, any threatened interruption to traffic usually is more readily dealt with than further south.

Permanent Magnets for A.T.C.

At a recent discussion on the link between track and train in automatic train control, held at the Institution of Railway Signal Engineers, the fact was brought out that only comparatively recently had it been possible to obtain permanent magnets of sufficiently good quality to make the system in operation on the Southend line of the then London Midland Region all that could be desired. It is curious to note that one of the best designed cab-signal systems, that proposed by W. S. Boult and tried on the Great Northern Railway over 40 years ago, used permanent magnets to act on the engine receiving-apparatus, and electro-magnets to cancel the effect and give various "proceed" indications. That apparatus worked excellently when newly-constructed, and was demonstrated at a meeting of the Institution of Civil Engineers; but it was found impossible to obtain permanent magnets of sufficient power, retentivity, and reliability, to justify the adoption of the scheme.

* * * *

British Road Services

THE Road Transport Executive announced on December 16 the future colour schemes for freight vehicles acquired by the British Transport Commission, which come under the control of the Executive. One specimen vehicle in each of the three liveries has been prepared, and members of the technical press were given an opportunity of seeing these with Major-General G. N. Russell, Chairman of the R.T.E., before he held a press conference. The colour scheme is as follows:—

1. Covered vehicles for parcels and small consignments—green with red wheels and white lettering.
2. Open general haulage vehicles—red with white lettering.
3. Furniture vans, tankers, and heavy haulage vehicles—blue with red wheels and white lettering.

The fleet name, "British Road Services," will be used for both the green and red vehicles, supplemented by the trade names of limited companies, of which the shares have been acquired by the B.T.C. When compulsory acquisitions begin on January 1, 1949, such undertakings will pass into the direct ownership of the R.T.E., as the assets and not the shares will be acquired, and the use of their fleet names will be subject to agreement on the part of the vendors.

The name Pickfords (without the addition of "British Road Services") is to be used for all blue vehicles, and these will be concentrated on "excluded traffics" such as furniture removal and tank transport, in which the R.T.E. is interested only through its voluntary acquisition of the shares in such companies as the Hays Wharf Cartage Co. Ltd. Such operations will be maintained on a functional basis, and not within the scope of the divisional organisation.

The road vehicles engaged on night trunk services will bear an illuminated headboard with the title "British Road Services."

All vehicles will carry the R.T.E. crest on the door panel of the driving cab on both sides, and, in the case of road vehicles engaged in general haulage, and the green vehicles employed on "smalls" work, this crest will be superimposed on a divisional colour disc. The colours selected for the eight divisions are:—

Scottish—Kingfisher blue.
North-Western—light green.
North-Eastern—red.
Midland—nut brown.
Eastern—Cambridge blue.
Western—grey.
South-Western—green.
South-Eastern—royal blue.

The Chairman emphasised that it might be a long time before these liveries were seen generally on the road, as the policy of the R.T.E. was strictly utilitarian, and there was no intention of repainting vehicles until they become due for normal painting. He said also that the maintenance of trade names was an interim step, and would be dropped gradually as the organisation was completed, with the possible exception of Pickfords. This use of Pickfords for "excluded traffics" involves the segregation of Pickfords from Carter Paterson. The joint parcels services of Pickfords and Carter Paterson, which were instituted on January 1, 1946, under seven operational areas, are being dissolved, and the parcels services will be organised under the R.T.E. divisional system, using the name Carter Paterson for the time being, and absorbing other acquired parcels services.

He also said that the ultimate size of the organisation was still subject to considerable uncertainty by reason of the lack of precise statistical information concerning the industry. At present the R.T.E. controls about 10,000 freight vehicles, and it is probable that the ultimate total will reach 40,000. This figure excludes the railway-owned road vehicles, which are not at present being taken over by the R.T.E., and about which no decision has been reached. For the time being collection-and-delivery services undertaken in railway-owned vehicles continue to be operated by the Railway Executive. Where such services are maintained under contract with the railways, the R.T.E. is not concerned, excepting in those cases in which it controls the limited company which is the contractor (such as Chaplin, Nall, and Wordie). Doubtless there will be changes ultimately as part of the general co-ordination of rail and road transport.

In conclusion he said that the policy of the R.T.E. was one of decentralisation, and that the major work would be undertaken by the divisions, and not at headquarters. Every effort was being made to recruit the personnel generally from the freight industry, and he did not expect that there would be any large headquarters organisation. In response to an inquiry, he made it clear that licences are required for vehicles operated by limited companies under the control of the R.T.E., and it is only vehicles in the direct ownership of the R.T.E. (in the same way as with those owned by the Railway Executive) which do not require road service licences.

* * * *

Commodity Statistics

IN the period of reconstruction after the war, through which we are now passing, there will be more need than ever before for ample commodity statistics. War conditions upset the normal flow of staple traffics and in peacetime much of the originating tonnage has not reverted to the old methods of transport. The redistribution of industry, which the Government is striving to foster, tends to cause raw materials and finished products to move in new directions. Without full information about the tonnage passing between different regions, the British Transport Commission will have difficulty in discharging its mission under the Transport Act, 1947, to provide "an efficient, adequate, economical, and properly integrated system of public inland transport and dock facilities."

From the nature of its business, the Docks & Inland Waterways Executive has details of the tonnage handled by all the undertakings under its control, but the Railway Executive cannot be so fully posted, to judge by the commodity statistics published in the Railway Returns for 1938. One table gave the tonnage of 19 commodities, varying from bricks to vegetables, with comparative figures for the previous five years. The table covered from 60 to 70 million tons of traffic each year, the largest traffic being iron ore, of which 12,410,000 tons was carried in 1937. A second set of tables gave the originating tonnage and receipts for the same commodities, plus seven others, with separate figures for 14 areas of the four main lines and totals for all standard-gauge railways. In addition, for the month of March, 1938, a study was made of the ton-miles for iron and steel in certain classes, conveyed at station-to-station rates; the calculations showed the average length of haul and the average receipt per ton and per ton-mile.

The three sets of figures did not supply any link between the originating areas and the receiving districts. No doubt the railways compiled many statements for their own use to indicate the destination, as well as the origin, of goods moving in large quantities. In the days of unrestrained competition, the goods managers would analyse the forwardings by the various routes which were open and the pooling schemes of 1932 entailed further enquiry into traffic movements. During the war, interchange arrangements at junctions were overhauled to ensure that heavy volumes of traffic passed by the most advantageous routes for train working.

During the war years America experienced a more violent dislocation of trade and industry than this country has felt. For the time being the Eastern railways have lapsed from their predominant position, while the Western railways have shot ahead and earned a higher net railway operating income.

To watch the consequent changes in the main currents of traffic, the Interstate Commerce Commission prepares, with the co-operation of the Association of American Railroads, an annual statement of the tons of wagon-load freight originated and terminated on the U.S.A. railways, including the lines operating in Canada. The statement gives separate tonnages for each State, except the small New England States which are bunched together, for six groups of commodities, subdivided under 261 heads as shown below:—

Products of agriculture	54	commodities
Animals and products	24	,,
Products of mines...	24	,,
Products of forests	10	,,
Manufactures and miscellaneous	148	,,
Forwarder traffic	1	
Total	261	

Perhaps it should be explained that forwarder traffic means "smalls" collected by a firm like our Carter Paterson and despatched in full wagon-loads.

A summary table gives totals for nine geographic regions, ranging from the New England States to the Pacific States of Washington, Oregon, and California. In 1947 the total originating traffic analysed was 1,515 million tons. Pennsylvania alone originated 310 million tons and terminated 376 million tons, so that this one State dealt with 7 or 8 per cent. more tonnage than British Railways. The largest item of forwarded traffic was 169 million tons of coal and coke; the received traffic included nearly 30 million tons of iron ore and 10 million tons of fluxing stone and raw dolomite. Even in short tons of 2,000 lb., these are large figures, but not more astonishing than Florida's output by rail of 1,311,000 tons of oranges and grapefruit. That tonnage was nearly equalled by California, which also despatched 488,000 tons of fresh grapes and 150,000 tons of pears and peaches. New York State, which ends twice as much traffic as it starts, received 672,000 tons of oranges and grapefruit and big quantities of other fruit and vegetables, one sample being 90,000 tons of tomatoes.

So far as we are aware, there is no analysis of British Railways' traffic to compare with this American statement, which occupies 17 large pages of close type, but is easy to follow. It must be a boon not only to those engaged in transport but also to economists and students of commercial geography in the States. We are indebted to the Librarian, Bureau of Railway Economics, Washington, D.C., for calling our attention to the existence of these commodity statistics.

Cast Iron in Architecture

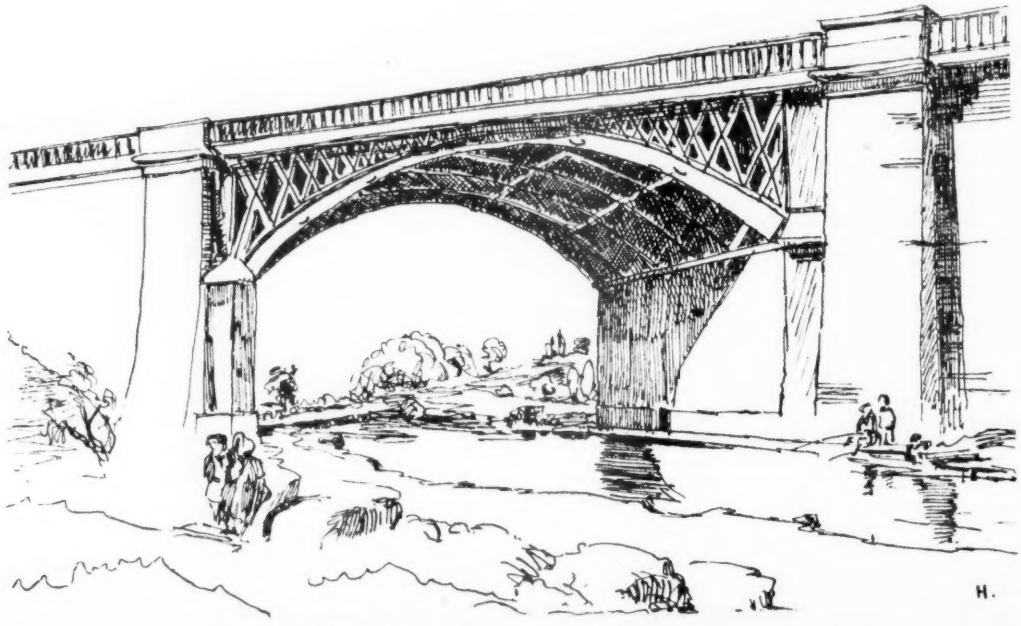
IN a new book* bearing the title "A History of Cast Iron in Architecture," John Gloag and Derek Bridgwater have essayed to win our interest in a subject which, at first sight, would appear to hold little to attract. Out of such seemingly intractable material, they have given us a book which deals comprehensively with the evolution of cast iron, the manifold uses of which are made clear by over 500 illustrations in the text, many of which are supremely well done and on the whole outweigh certain less interesting repetitive "catalogue" type reproductions. There are also six full colour plates, which include Sir Joseph Paxton's great Crystal Palace building, shown in gala dress.

The book title is really an understatement, for the range covers the early extraction from iron ore, at the end of the Neolithic period, and shows also, sixth century Chinese castings of animals; then follows the development of its uses for purposes as widely separated as grave-slabs (A.D. 1591), and complete shop facades (20th century). The story of cast iron is inseparably linked with the development of railways. It was in the British Isles that the early timber rails formed tracks for horse-drawn wagons, conveying the raw material from the ironfields, to pass through the various stages of manufacture to the finished product. Then, as the timber tracks became worn, they were covered by iron plates and, finally, the introduction of steam traction established the widespread use of cast iron in the early part of the railway era.

The authors take us, by five stages, between the years 1650 to 1945, describing the rise and expansion over a wide field, with special significance to its application to architecture, and particular stress is laid on development during the 40 years between 1820-1860, corresponding with the establishment of the railway system.

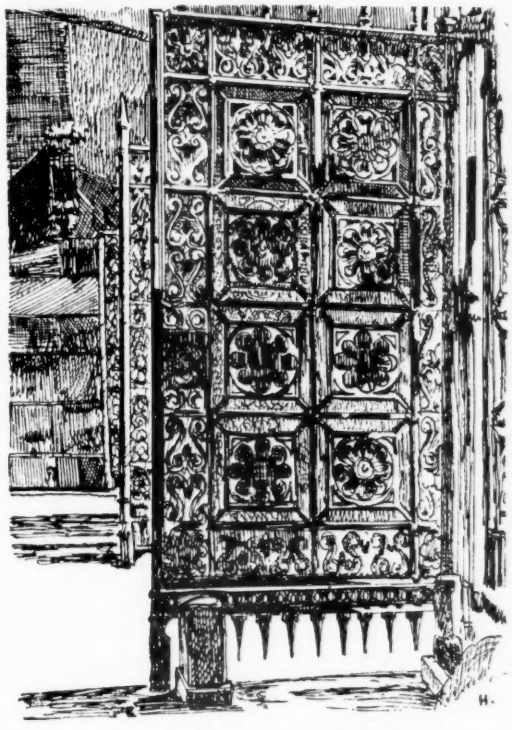
In this era, the spirit of enterprise and adventure in British engineering is compared with that of the Elizabethan adventurers and merchants, who risked life and capital to open up markets in the New World. It can be said truthfully that the foundations of trade and industrial expansion in this country were broadened by the development of our railways. The contributions of cast iron to the development of British railways, may be placed in four main categories: The permanent way; bridges and viaducts; the buildings; gates, railings, fences, etc.

* "A History of Cast Iron in Architecture," by John Gloag and Derek Bridgwater. London: George Allen & Unwin Limited, 40, Museum Street, W.C.1. 11¼ in. × 8½ in. 395 pp. Price 63s. (See Publications Received, December 10.)

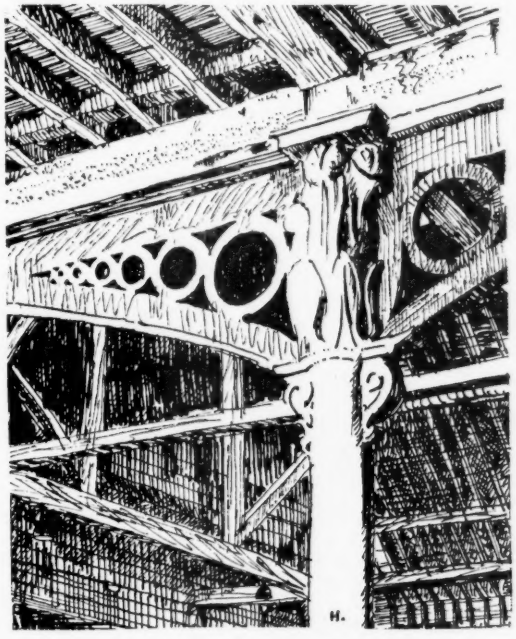


Nash Mill; cast-iron bridge near Kings Langley

Of the many bridges illustrated, the Nash Mill cast-iron bridge designed by Robert Stephenson for the London & Birmingham Railway near Kings Langley, Herts., is a suave example of the combination of strength and flexibility, unusual in cast iron. An almost equally versatile example, though serving a much less conspicuous purpose, is the detail of the supporting columns and girders in the Nine Elms Goods depot (Southern Region) designed by Sir William Tite in 1837. By contrast, the massive cast-iron gates at the entrance to Euston Station—designed by Philip Hardwick—enjoin our appreciation of the dignity they display in their symbolism; a symbolism which, from the romantic past, should carry forward today the idea of the "Gateway to the North."



Euston Station; entrance gates



Nine Elms; detail of column

One should also mention the soaring arched roofs of Paddington (by I. K. Brunel and W. D. Wyatt, 1854), and St. Pancras (by W. H. Barlow, 1868). It is a pity, however, that the illustrations in these cases are somewhat lifeless, particularly in the latter example, where, in reality, when the sun streams through the glass roof, one senses the dynamic vigour of its design.

The authors of the book under review, in quoting Howard Robertson (*vide* "Architecture Arising") disclose the profound but neglected truism that "Some of the older railway stations in England might restore to present-day engineers a not unwholesome humility; for their great steel and iron vaults are often things of beautiful shape and extraordinary daring, unnoticed today because they are both begrimed and familiar—the one thing that makes them satisfactory is that they were built in the stride of the industry of the day to serve a purpose in the building programme."

There we have it, unequivocally; the totally covered station, its wide spans permitting flexibility of movement at platform level and its lofty roof giving a sense of spaciousness into which the multitudinous noises inseparable from the arrival and departure of trains disappear. Much more might be written and yet be inadequate to describe what yet remains. It is worthy of remark that in these days of rationed supplies the publishers have felt justified in placing a book of this capacity on the market.

* * * *

A Railway Engineering Career

REFERENCE already has been made in a previous editorial to the concern with which the American railway administrations view the falling off in the number of graduate engineers at recognised universities and colleges, who are applying for appointments on their railways. The American Railway Engineering Association also is realising that everything possible must be done to attract the most promising students to railway work, and is making a definite effort to give the younger railway engineers greater opportunities for active participation in the numerous committees controlling its various lines of research, leading to improved standards of equipment of all types, and more efficient methods of all kinds of maintenance. The expanding research programme of the A.R.E.A. offers many opportunities for initiative, which should prove attractive to the keen university man about to take up engineering as a profession.

Though the American railways have nothing so exciting or attractive to offer the prospective junior engineer nowadays as survey and construction of new lines in undeveloped country, they are making the most of the many atttractions they still have to offer. A notable example is the case of the Pennsylvania Railroad, which has issued a remarkable illustrated brochure entitled "Railroad Engineering: A Challenge and an Opportunity." This brochure is reviewed elsewhere in this issue.

As will be seen, the administration places all its cards on the table; every aspect of the training, prospects and advantages offered to the young railway engineer are dealt with, and all his likely queries are answered. The engineering student at every recognised university or technical college, who takes his degree, or the equivalent, thus has all the facts before him in so far as a future career on the Pennsylvania Railroad is concerned.

The course of training normally is completed by the junior engineer in 30 to 36 months, but some individuals absorb the fundamentals of the work so rapidly that they complete their training in two years or even earlier. The trainee gradually assumes greater responsibilities and more supervision, and there is no hard-and-fast line between training and post-training periods. Meanwhile, remuneration is comparable with that offered to graduates by other industries.

Provided vacancies are available, the young engineer is offered the choice of the five courses (outlined in the review on page 718), all of which eventually may lead through one

of the three main departments—operating or maintenance of either way or equipment—to management. It is emphasised that promotion is not by seniority but by ability, and all officers and executives of the company are trained in and promoted from the ranks of the organisation. It has always been the policy of the Pennsylvania Railroad to develop its younger men, and in particular its young engineers, for positions in the management.

That seven successive Presidents have been trained engineers, and that, at present, four Vice-Presidents and three Regional General Managers are also technical men, is proof that opportunities for the promotion of the young engineer are not lacking. Moreover, almost all general superintendents and superintendents and many other higher officers joined the railway as junior engineers.

Other American railways also are working on the same lines as the Pennsylvania administration, and close touch is being maintained with all university and technical college authorities to ensure that undergraduates have ample opportunity for learning that railway engineering still provides many opportunities for initiative in the United States. It is significant that in that progressive country so many engineers should find their way to the highest executive posts. This fact makes it clear that a graduate with a recognised degree, who enters on a railway career seriously has unusual opportunities for attaining positions of great responsibility in the shortest possible time.

In addition, to quote the Pennsylvania administration: "Many years of experience have demonstrated that graduates of good engineering schools generally learn faster, advance more quickly, and contribute more original thinking to railroad problems than any other group." We would further add that the engineer is usually helped by an ingenuity and adaptability inherent in the born-engineer, a naturally broad outlook, a creative capacity, no lack of foresight, and a training and experience that demands precision, initiative, rapid decision, and a clear sense of reasoning and proportion.

In the circumstances, it is not surprising that in a letter addressed to the editor of *Engineering News-Record*, Mr. J. L. Gressitt, Chief Engineer of the P.RR., writes: "... though not accorded the popular glamour that rightfully belongs to the period that spanned the continent with this vast network of railroads, modern railroad engineering faces problems whose solutions offer just as great opportunity for adventure, require just as much ingenuity, and challenge the interest and initiative quite as keenly. It is true, too, that more than a few well-advised young men of engineering training are finding satisfaction in a railroad career."

So much for the United States; what about this country and the Commonwealth, including the colonies? Had India remained British there would have been many engineering students aspiring to a career of engineering construction and maintenance under assured conditions in the Peninsula. These young men now should be available for this and other lands, as soon as they have qualified theoretically and practically. One would expect that the colonies would attract them. The Dominions are mainly self-dependent in recruiting their railway engineers, and usually have a certain amount of pioneering construction work in hand to dangle as additional bait to youngsters. And here, at home, are we getting the best types and brains for the various branches of engineering under the Railway Executive? [We do not put brains first as other qualities—capacity for leadership, for instance—are equally important.] Or do the most suitable engineering students need wooing by the dissemination throughout the universities and technical colleges of information, outlining the attractions and advantages offered by British Railways? Are the Executive's Chief Civil and Mechanical Engineers entirely satisfied with the material coming to them as railway trainees? Is there better available, which is going elsewhere? All these queries seem to us to be of the utmost importance, for the railways should be satisfied with nothing but the best.

Since the foregoing paragraphs were written, we have noted with moderate gratification that Sir Eustace Missenden, Chairman of the Railway Executive, in his speech at the anniversary luncheon of the Institute of Transport, expressed a lively appreciation of this very state of affairs. He is reported as having said that one of the things that disturbed him in the vast reorganisation of British Railways was the problem of incentive. He considered that it was vital for the transport service to attract and keep the very best types of young men and women in face of competition with industry generally. He did not specifically mention engineers, but obviously intended to include them.

* * * *

Kenya & Uganda Railways & Harbours

THE report of the administration for the year ended December 31, 1947, is the last to be presented for a complete year, as the system was amalgamated on May 1 last with the Tanganyika Railways & Ports Services to form the East African Railways & Harbours, of which Mr. A. Dalton is General Manager.

There is physical connection between the Kenya and the Tanganyika railways at Kahe. The Kenya & Uganda Railways & Harbours operate 1,625 miles of metre-gauge line, 2,280 route miles of steamer services, and 75 miles of road motor transport services, excluding motor feeder services.

Three harbours at Mombasa are operated by the administration: Kilindini, a deep-water haven able to take ships of up to 40,000 tons; Mombasa (Old Port) Harbour, mainly used by dhows; and Port Reitz, an inlet providing anchorage for deep draught vessels.

Combined working results of all services during 1947 show earnings of £5,718,189, an increase of £605,149 compared with 1946. Ordinary working expenditure was £3,677,689, an increase of £445,142. The ratio to earnings of ordinary working expenditure was 64·32 per cent., or a 1·10 per cent. increase on 1946. The operating ratio, 71·65 per cent., excluding contributions to renewals funds, was 71·65, as against 70·96 in 1946.

Below are given comparative results of the railway, lake steamer, and motor transport services:—

	1946	1947
Passengers	3,005,181	2,998,603
Paying goods, tons	1,885,424	1,966,424
Revenue train-miles	3,850,481	3,805,322
Paying goods, ton-miles (excluding renewals)	572,081,215	592,285,118
Operating ratio, per cent.	65·16	68·59
Average haul, miles	289	321
	£	£
Passenger receipts	797,957	715,840
Goods receipts	3,357,906	3,771,587
Gross earnings	4,346,868	4,678,601
Working expenditure	2,832,565	3,208,996
To renewal funds	358,362	384,253
Miscellaneous transactions, net	Cr. 70,669	Dr. 35,463
Net revenue	1,226,611	1,049,889
Loan charges, etc.	615,717	530,073
Surplus	610,894	519,816

In his general review, the General Manager states that the chief difficulty of the Administration was a shortage of all materials and coal. Import traffic resulting from the British export drive rose sharply. Intensive user of rolling stock helped to offset wagon shortage, and new rolling stock is now on order. During the year, 32 new third class coaches and 10 American covered bogie wagons went into service. A section of the main line is being realigned as rapidly as the labour and materials shortage allows. Consideration was given during the year to the reorganisation of the Mechanical Department's workshops in Nairobi, by which it is hoped to increase output and effect substantial economies.

A diesel railcar service was inaugurated on the Kisumu-Butere branch, which traverses a thickly populated native reserve, in August, 1947, and the railcars, with their speed, comfort, and regularity, attracted the bulk of the passenger traffic to and from Kisumu.

Unfortunately, because of mechanical difficulties, the regularity of this service was not maintained. Shipwreck of a vessel bringing out the necessary equipment delayed the conversion from coal to oil fuel burning of the locomotives, decided on because of the difficulty in obtaining an adequate coal supply.

On January 1, 1948, Sir Reginald Robins, then General Manager, Kenya & Uganda Railways & Harbours, was appointed Commissioner for Transport, East Africa High Commission, an appointment which heralded the amalgamation of the Kenya & Uganda Railways & Harbours and the Tanganyika Railways & Ports Services under the title of the East African Railways & Harbours.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Gauge of Continental Railways

London, W.C.1. December 10

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Did Sir Herbert Walker give quite the latest information to the Joint Committee of both Houses of Parliament on December 1, in his statement on the Channel Tunnel (quoted in your issue of December 10, page 663) when he stated that the width between the rails is $\frac{3}{8}$ in. more on the Continent than in this country?

Possibly Sir Herbert Walker was repeating a statement which had been compiled in the earlier stages of the Channel Tunnel enquiry, at a time when many of the Continental railways were laid to a track gauge of 1·44 metres. This has not applied since the war of 1914, and all the important standard-gauge Continental railway administrations have adopted the gauge of 1·435 metres, as is shown correctly in the *Universal Directory of Railway Officials*. The gauge of 1·435 metres is almost precisely 4 ft. $8\frac{1}{2}$ in. (56·4961 in.).

Yours faithfully,

CHARLES E. LEE

The Winsford Accident

9, Keble House,
Manor Fields,
Putney, S.W.15. December 12

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In the report on the above accident, summarised in your issue of November 19, appear the following words:—"(The driver) . . . shut the regulator and allowed the train to be stopped after at first trying *unsuccessfully* to overcome the fall in vacuum by the large ejector."

To me the operative word is "unsuccessfully," for I was always under the impression (maybe an erroneous one) that in cases where the cord is pulled or the guard uses his "brake-setter," the loss in vacuum is so slight that the driver is able invariably to counteract its effect by the use of his ejector.

I seem to remember, in this connection, that there is a rule prohibiting the driver from stopping the train at an unsuitable spot, for example, in a tunnel or on a viaduct.

Furthermore, whenever the vacuum is seen to be falling in such circumstances, it is logical for the driver to assume that some emergency has arisen, and that therefore he should run cautiously forward to the nearest convenient point, where the train can remain within station limits (and, still more important, in constant sight of the signalman), and also whence medical assistance, if it should be necessary, can be summoned speedily.

At Winsford it is only too apparent that, had the driver been still in control of the train and proceeded in the way I have indicated, it would have been brought eventually to a stand on the berth track circuit and thereby prevented the signalman, however distraught he may have been at the time, from committing his serious block irregularity.

Perhaps you or one of your readers can kindly elucidate this matter for me?

Yours faithfully,

J. E. L. SKELTON

The Distant Signal—and Other Matters

"The Old Manor,"
Salisbury,
Wilts. November 27

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. C. A. White's letter in your November 26 issue is a useful contribution to the discussion. His experiences seem to bear out the general tendency.

The October issue of the American magazine *Trains* has just reached me from the States. According to this, the Illinois Central found that their existing yellow warning signal did not give sufficient braking distance for their latest fast passenger trains. In consequence they arranged the previous signal to give a flashing yellow, which corresponds with the double yellow of our normal four-aspect arrangement, the sequence becoming: (*a*) a succession of greens; (*b*) a single flashing yellow; (*c*) a single steady yellow; (*d*) red.

A flashing light is certainly distinctive; the Danish distant first came to my notice in 1912 or 1913 and was then established; presumably there is no bother with the mechanism of the flash, which is the only hole one can pick because of simplicity.

To add a point to Mr. Wells's argument in the same issue in favour of home-produced fuel, a stationary boiler will burn stuff that cannot be burnt in a locomotive.

Mr. M. Terwindt, in his letter on British canals in the November 26 issue, extends very much what I said in a letter that has not yet broken surface. The majority of our canals are very narrow, almost too narrow to be useful, which restricts the size of boats. Even so, considerably more use could be made of them to everybody's advantage. It might be difficult to widen them in towns and certain other spots, but as large wagons do not seem popular on the line, the same might apply to inland navigation. The average distance between locks in this country is $4\frac{1}{2}$ miles, against 25 to 100 in parts of the Continent, and is a disadvantage which slows up canal boats, but a tremendous amount could be done with a little management and drive.

On the subject of locomotive works plates, discussed in letters in your September 10 and 17, and November 26 issues, I saw an engine in 1942 in Peterhead Station, Aberdeenshire, with an L.N.E.R. plate and a date very many years before the amalgamations were ever dreamed of.

Yours faithfully,

COURTENAY BARRY

"Swan Song of British Indian Railways"

South Indian Railway,
Trichinopoly,
India. December 11

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—There is a slight error in your figures in the article entitled "Swan Song of British Indian Railways," in your October 22 issue. There are four metre-gauge electric locomotives on this railway which have been in service since 1931, but do not find a place in the article.

Yours faithfully,

C. A. WHITE
Deputy Chief Traffic Manager
(Signals & Communications)

The T.I.A. Water Treatment System

Burma Railways,
Insein,
Burma. December 4

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Near the end of page 342 of your issue dated September 24, 1948, you mention "the T.I.A. system," which appears to be a system of feed water treatment. I regret having to confess I am ignorant of this system and therefore shall be obliged if you will please direct me to the makers, or to a textbook, or other source of information so that I may learn more about the matter.

If you will please excuse my including these two subjects together in one letter, may I remark on the user of "User" by certain (mainly traffic) officials of railways in sentences where most English people could make use of "use"? May I recommend that your paper should decline to print the word "user" except when it is intended to mean the person who makes use of something? As a daily user of various vehicles and commodities I find it somewhat confusing (and therefore a little annoying) to read that the average daily user of such a vehicle or commodity is so many ton-miles or tons or hours, *etc.*

I am prepared to admit the use complained of sometimes may also be a little amusing. I am also prepared to hear that it is shown in various dictionaries, particularly the Oxford Dictionary, but though dictionaries record how words have been used, I suggest they are not always a good guide as to how words should be used. For example, I decline to become a user of the word "timeous," in spite of your having recently found it in the dictionary! I make these remarks in all friendliness and without any intention, or wish, to see them published, and apart from the one word I willingly compliment you on your general good standard of English.

Yours sincerely,

D. P. EDMUNDS

[The Traitement Intégral Armand system is standard practice on the French National Railways. A diagram showing the arrangement of the process was given on page 570 of our November 19 issue, together with some notes on it.

The word "user," in the sense to which our correspondent takes exception, is an example of modern usage which has become associated with a technical meaning of its own. We are inclined to agree that it is no more pleasant in use than certain other modern words, such as "utilisation," "transportation," and even "upon"; of the last named, it has been said, "one has to be up to be on."—ED., *R.G.*]

The Scrap Heap

Shorter Trains—and Less Heat

Shorter trains are being run in Switzerland as a temporary measure to save power. This step has been necessary because of persistently dry weather which caused the water level of the rivers and storage lakes feeding the hydro-power stations to become unusually low. Heating in the trains has been reduced. Train crews have been instructed to see that the temperature in the carriages does not exceed 57·2° to 59° F. by day, and 64·4° F. by night.

* * *

Level Crossings on Main Roads

Level crossings on main roads are an intolerable scandal. When the highway concerned is what is commonly called the Exeter Road—though it actually goes to Penzance—it is really an outrage that this anachronism should be tolerated. The crossing, of course, is the one at Sunningdale. The other day I approached from the west. The gates were across the road. After a while a train came through, and it seemed to be our turn now. Not at all. The gates remained shut, while the road traffic piled up in lengthening lines on both sides. After fully five minutes the reason became clear. Another train was sauntering along in the opposite direction and of course the gates had to wait on its pleasure.

Would any other civilised country tolerate such impediments as these on roads of the first order of importance? I find it hard to believe—though no doubt someone will write and tell me of worse cases.—*Janus in "The Spectator."*

An Angry Passenger

I know the difficulties of our railways are great. We pay for some of them in those exorbitant fares and freight-rates which are keeping people from travelling by rail. But reforms do not always cost much money. Take the two luggage vans attached to the end of the afternoon mail train from Inverness to Euston, through which all users of the dining-car must pass between Aviemore and Perth. This passage would turn a feeble stomach even before he finished the dinner provided.

At Nairn the boxes of fish, stinking and dripping, from the fishing ports are dumped in among the mails and passengers' luggage. Long before Perth is reached the suitcases and trunks are islands in a sea of rancid salt water, the mails are awash, and the retrievers and setters and spaniels add their quota.

It would not cost much to arrange for partitions for mails, dogs, fish, and passengers' lugggage, or to raise the floor some 6 in. for the suitcases and mail-bags. The filth and chaos suggest the mentality of a Killarney peasant (pre-wars) and I cannot believe it is necessary. Then at last the coaches come to a halt at Euston on the narrowest part of the platform, which is soon blocked with the mail-bags and the trucks.

There are not, of course, half enough porters available, and the scramble and the chaos increase as the owners haul their relics from the vans and try to drag them through the bottleneck to the waiting taxis. Is the proud race of Britons really going back to inertia and muddle, or does nationalisation spell chaos? I wish the P.R.O. would find time to encourage me.—*"The Old Stager" in "The Sphere."*

100 YEARS AGO

From The Railway Times, *Dec.* 23, 1848

Mr. Glyn, as Chairman of the London and North-Western Railway Company, has been pelted with another pamphlet upon the subject of the losses to which the revenue of that Company is exposed by the carriage of goods. The *brochure* is of the Whitehead school: and we are inclined to spare our readers any further exhibition of those views at present. The present author has neither the ability nor the learning of his prototype; and except for the desire of maintaining the hypothesis of "a loss" in the face of Captain Huish's heavy battery, we can discover no very valid reason for the appearance of the 'letter.' We have before us the return of traffic for the week ending December 17, in which the merchandise is stated as having produced 14,214*l.*, against 11,677*l.* in the corresponding week of last year, with an increase of length of less than 10 miles. This may or may not be a proof of profit, but it is a proof of increasing returns; and when we remember that last year the goods traffic paid its own and the passengers' traffic expenses, we may be allowed to doubt whether there is any need for proprietors to despair, or for authors to hurl any more pamphlets at the head of the honourable Chairman.

* * *

Moderated Festivity

Bunting, flags, and Christmas trees have been used by the London Midland Region of British Railways to decorate eighteen of its principal stations. Among these stations are Euston, St. Pancras, Birmingham, Liverpool, Manchester, Sheffield, and Blackpool. It is stated that the decorations will not be so elaborate as pre-war.

Symbols and Totems Used by the British Transport Commission and its Executives

There is also a symbol similar to British Road Services, bearing the words "British Transport," which is used for the operations of the Commission. We understand that there is no intention of using the phrase "British Hotels." The phrase at present used is "Hotels Executive, British Transport." Presumably "British Buses" is not available, as these words form part of the totem of the British Omnibus Companies Public Relations Committee

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Cape Eastern Main Line

A further section of the new Cape Eastern main line, between Gaika and a point south of Goschen, was opened to traffic on October 25. This section is part of regrading and deviation work between Amabele and Imvani which is being carried out at an estimated cost of nearly £3,000,000. The section opened includes the new Cathcart Station. The line passes through difficult country, and the new section includes two tunnels, each more than 2,000 ft. in length. Just north of Cathcart the line passes under Hobbs Hill in a tunnel 3,202 ft. long, the longest tunnel on the South African Railways. The other tunnel, between Gaika and Cathcart, is 2,225 ft. long, and is the third longest on the Cape Eastern main line. With the opening of this section the total route-mileage between East London and Goschen will be reduced from 112 to 97 miles.

Road Motor Services

Several new road motor services were introduced during September, increasing the route-mileage of railway-operated services by more than 300 miles, and bringing the total mileage of open routes to 24,566. Three services for Europeans only, operated with luxury buses, were inaugurated, including one of 83 miles between Cape Town and Piquetberg, one of 79 miles between Pietermaritzburg and Kranskop, *via* Greytown, and a week-end service between Johannesburg and Heidelberg, a distance of 33 miles. New services for all classes of traffic, using general purpose vehicles, also were introduced during September.

INDIA

Acceleration of Delhi—Madras Service

The Railway Board has completed arrangements for accelerating the "Grand Trunk Express" between Delhi and Madras. According to the new timetable, which came into effect on November 15, the express covers the journey either way in 46 hr. The saving in time is five hours on both the southward and the northward runs, as compared with the timetable in force from April, 1948, before the express took a circuitous route to avoid Hyderabad territory. The speed-up has been made possible by curtailing some halts and eliminating others, reducing the load to nine coaches, and removing perishable traffic and parcel vans from the express.

WESTERN AUSTRALIA

Financial Results

The results for the quarter ended September 30 showed a loss, after payment of working expenses and interest, of £672,278, compared with a loss of £366,290 for the corresponding period of 1947. Earnings totalled £1,224,100, compared with £1,160,700. Working expenses rose to £1,632,278, compared with £1,266,890 in 1947. Interest was £264,100 for the 1948 quarter and £260,100 in the 1947 period. The operating ratio was 133·35 per cent. this year and 109·15 per cent. last year.

Although it is pleasing to record an increase in earnings, the steep rise in working expenses is a matter for concern. With a view to increasing earnings, freight rates and fares were increased from September 1 by an average of 20 per cent., although the increases were eased on the longer distances. This increase is estimated to return an additional revenue of approximately £900,000 a year, but it is too early to say what the real effect will be on the finances.

Increases in salaries and wages paid were the main factors in the higher expenditure in 1948. Basic wage and industrial award increases in rates of pay and variation of conditions, such as penalty rates for Saturday and Sunday working, and reduction of hours from 44 to 40 a week are the principal causes of the rise. The constant rise in cost of materials is also a major factor. The impact on finances of this uncontrollable expenditure—for which there is no recoup in additional revenue—is considerable.

Mobile Blood Clinic

A mobile blood clinic, believed to be the only peacetime unit of its kind in the world, has been placed in service on behalf of the Blood Transfusion Service of the Australian Red Cross Society (Western Australian Division).

The unit consists of a converted railway coach, with compartments fitted for blood donations, a rest room, kitchen and canteen, refrigerator with storage capacity for 300 bottles, store, lavatory facilities, shower, and electric light. It is staffed by a Red Cross sister and three female technicians. The coach is attached to country trains, stops at sidings where needed, and moves on in trips lasting about a week, and accepting about 300 donors each time. Local doctors are in charge at each stop. The purpose of the unit is to contact the great numbers of country donors who are ready and willing to give blood if only they can be reached. Previously the Blood Transfusion Service relied almost entirely on road motor transport for this purpose, but this proved costly, and on the whole not very satisfactory, and the rail unit is found to be much better suited to the service.

The conversion of the coach was carried out at the railway workshops, Midland Junction, and the cost, £1,400, was borne by the Western Australian Lotteries Commission.

FRANCE

Frontier Stations with Italy

Negotiations in progress between France and Italy include new conventions regarding the régime in force at the French-Italian frontier stations of Modane, in French territory, on the Paris—Turin main line, and Ventimiglia, in Italian territory, on the Marseilles—Genoa main line. The old conventions covering these two important stations, the only main-line frontier stations between the two countries, have lapsed, but have been kept in force pending the conclusion of new conventions. There is another railway, though not a main line, connecting both countries, that from Nice to Cuneo, bifurcating at Cuneo for Turin and Milan. A special régime governed this railway before the war because from Fontan, then the French frontier station (located in France), a branch line leading south re-entered Italian territory, connecting at Ventimiglia with the Marseilles—Genoa main line. The sections of the line in French territory between Fontan and the frontier to the south and to the north of Fontan were owned and worked by the Italian State Railways, and a special convention provided for the operation of Italian trains through this strip of French territory. At present, the railway services are limited between Nice and Breil only on the French side, 27·3 route-miles. The railway still is partly wrecked between Breil and Fontan (5 miles) and further north, also on the Italian side, and between Fontan and Ventimiglia has been largely destroyed during the war. Hence no traffic operates on this branch which, in addition, has lost the importance it had before the war. No agreement has been reached between the two countries as to its eventual reconstruction.

Lightweight Coal Wagon

The prototype of a lightweight high-capacity coal wagon, designed and built by the Société de Transports et Manutentions Industriels, has been placed in service. From a report recently published by the firm it appears that the large-scale use of light alloys in the construction of the experimental wagon enabled its tare to be reduced by one half in comparison with that of a standard coal wagon. Its loading capacity is 65 *tonnes*.

AUSTRIA

Bregenz—St. Margrethen Electrification

Electric traction on the 8-mile line between Bregenz and St. Margrethen, the northernmost railway link between Austria and Switzerland, electrification of which was reported in the November 5 issue, was introduced on December 5.

Increasing Railway Traffic with Italy

Recent reports emphasise the steady expansion which has been taking place in the goods traffic with Italy in recent months. It has been more pronounced in the southbound traffic. In November, the goods traffic on the Vienna—Villach—Tarvisio—Udine line greatly exceeded that on the same line in August last. The southbound traffic does not originate, however, entirely in Austria, as much of it is transit traffic. Prominent transit consignments in recent weeks were pipings from Czechoslovakia for the construction of pipelines in Roumania, routed *via* Trieste or an Italian port. Traffic conditions will be improved between Austria and Italy from January next, when goods trains will take only 20 hr. to cover the 247 miles between Vienna and the frontier at Tarvisio. A feature of the Austrian export by railway is the excessive wagon space required, as 33 per cent. of the goods exported to Italy is timber and 17 per cent. pig iron.

GERMANY

Reichsbahn Staff in the Bizone

The staff of the Reichsbahn in the bizone numbers at present about 500,000, or approximately 150,000 more than for the corresponding territory in 1936. The increase results partly from the factors mentioned in the article on railway finance in western Germany in the October 8 issue, and largely to the introduction of the eight-hour working day. This measure alone resulted in an additional demand for 60,000 men. The general reduction in the speed of trains (in the case of passenger trains the average reduction is 25 per cent.) has made it necessary to increase

the number of train crews, locomotive crews, and so on, by some 10,000, and 10,000 more have been needed to strengthen the railway police. The expansion of the social services has required an additional 3,000 men and women for welfare activities and catering services, and finally, the total on the sick list has been increased by an average of 4,000, mainly because of under-nourishment.

Improved Travelling Conditions in the Bizone

Travelling on the Reichsbahn in the bizone has improved greatly as a result of the changes brought about by the currency reform in June last. Whereas before the reform travelling was something of an ordeal in overcrowded and dirty trains with broken window panes, the conditions at present in both local and long-distance trains are much better. There is now no difficulty in securing a seat in the trains, and many fast trains again carry dining cars. Even non-priority passengers are now able to reserve sleeping berths on many long-distance trains. Boards and sheets of cardboard which used to replace broken window panes have been replaced by windows, and during the night all coaches are lit. Except on international trains the second class is still absent, as all upholstered coaches have been reserved for occupation authorities.

Station waiting rooms and restaurants which before the currency reform used to look more like meeting places of black marketeers or resting places for homeless persons seem to have reverted to their former destination, and attendants seem to make every effort to regain some courtesy. The recent introduction of Sunday return tickets at reduced fares has contributed greatly to the general improvement.

The better picture is marred by the persistent habit of vandals in removing electric bulbs or other fittings, and damaging the interior of coaches whenever opportunity offers. It is to be hoped that a stop will be put to this nuisance before the upholstered second-class coaches, the release of which in the near future was promised by the occupation authorities, are available again for the general public. Widespread relief has been felt at the disappearance, after the currency reform and the resulting plentiful supplies of foodstuffs, of the hoarders who, returning from so-called "hunger trips" in the country, used to obstruct compartments and corridors with their bulging articles of luggage intended for the black market.

DENMARK

Electrification of Copenhagen Suburban Line

Electric trains will operate between Vanløse and Ballerup (6½ miles), as from May 15, 1949. Electrification plans for Copenhagen were described in our February 27 issue.

Work on this electrification began before the war, but had to be postponed because of lack of materials. After the war it was still difficult to obtain sufficient materials, but all the fixed plant, including new station buildings, bridges, a second track from Vanløse to Herlev, the overhead wires, and a new substation in Skovlunde, has been completed. The first of the new motor coaches and trailers are expected to be delivered from Scandia, Randers, in August, 1949.

In spite of this it has been found possible to inaugurate the new electric service from next May, when the present electric service from Holte through Copenhagen to Vanløse will be extended to Ballerup with a 20-min. service all day. This can be effected only by postponing certain repairs and using the reserve sets for the present electric stock. The new electric service will be worked only on weekdays, and diesel or steam trains will operate on Sundays as at present.

Copenhagen—Prague Express Envisaged

A Reuters report states that Denmark will invite the traffic boards of the Eastern zone of Germany, and Czechoslovakia, to a conference to reach a final decision on the establishment of an express train connection from Copenhagen to Prague *via* Berlin three times a week. It is understood that the conference will be held on board a Danish ferry.

BELGIUM

Rebuilding of Moresnet Viaduct

Satisfactory progress is being made in the reconstruction of the Moresnet Viaduct, west of Aachen, on the National Railways. Before demolition by the Germans, this viaduct consisted of 22 truss spans each 157 ft. long, and its highest pier measured 164 ft. Four of the piers were demolished completely and one or both ends of eleven of the spans were dislodged and fell to the valley ground level. The piers already have been rebuilt and seven of the spans have been repaired and raised.

Publications Received

The Locomotives of the L.N.W.R. By H. F. F. Livesey. London: The Railway Publishing Co. Ltd., 33, Tothill Street, S.W.1. 9 in. × 5¾ in. 100 pp. Illustrated. Price 10s.—For some years after its formation in 1846 the L.N.W.R. retained the separate locomotive organisations of its constituent companies. As a result of the closure of Longsight and Wolverton Works, on the retirement of Trevithick and resignation of McConnell, in 1857 and 1861 respectively, John Ramsbottom was appointed Locomotive Superintendent of the whole railway with all locomotive construction and maintenance concentrated at Crewe. In this book the author brings under review the locomotives of the L.N.W.R., from the formation of the "Premier Line," up to the time of grouping. The chronological arrangement of the information facilitates reference, and 35 illustrations provide a pictorial summary of the progress in locomotive design at Crewe Works.

Railroad Engineering: A Challenge and an Opportunity. An illustrated brochure published by the Pennsylvania Railroad for the benefit of graduate engineers. 11 in. × 8½ in. 22 loose-leaf pages in striking coloured paper cover, with a foreword signed by Mr. M. W. Clement, the President, entitled "An Invitation to Young Engineers." It begins: "Many young graduate engineers have found unusual opportunities and interesting careers, and have achieved brilliant success in the organisation of the Pennsylvania Railroad. The opportunities which they grasped are always open to promising young graduates of recognised engineering schools." The President then asks such men to consider a P. R.R. career, and explains that this brochure describes that railroad, the type of young men it wants, and the methods adopted for developing their abilities and their engineering knowledge. It should be noted that "engineering" includes civil, mechanical, electrical, and marine engineering.

The advantages of railway engineering are then set forth in the body of the brochure, and its opportunities and security are stressed. The national and geographical development aspect of American railways—383,000 miles in aggregate length—and the engineer's place in them is explained. Reference is then made to the P. RR. system, and its engineering constructional achievements and extent of its rolling stock are noted, as is its detailed organisation in tabular form. The remarkable number of engineers who have held the higher positions on this railway is set out in detail; of the eleven Presidents, seven in succession have been trained engineers.

The Altoona works and their capacity also are briefly described, as are the Research or Test Department, and the railway's locomotive testing plant. Diagrams show the paths by which the engineer may proceed from the selection board by any one of five different courses of training—(1) track, (2) signals & telegraphs, (3) bridges & buildings, (4) motive power & equipment, and (5) marine equipment—to (*a*) the maintenance of way department or (*b*) the maintenance of equipment department, and thence *via* the operating department, or other department for special training, or direct, eventually to attain a post in management. A triple-folding page also elaborates in tabular form general details of the Pennsylvania training programme for junior engineers. The booklet closes with a series of questions likely to be asked by prospective junior engineers and answers to them. The whole training system is comprehensive and has much to recommend it. Further reference to this brochure will be found in an editorial on p. 713.

Lincoln Weldirectory.—We have received from the Lincoln Electric Co. Ltd., Welwyn Garden City, Herts., a copy of its new Weldirectory, which has been produced as a combined catalogue and welding procedure manual for the convenience of users of welding at home and overseas. As much technical data as possible on the subject of arc welding electrodes have been included. The Weldirectory is distributed by the Lincoln Electric Co. Ltd., free of charge, on request.

Saro Plywood.—The qualities of synthetic resin-bonded plywood are causing it to find increasing application in decoration and construction of the interior of railway coaches. Saro Laminated Wood Products Limited points out in this brochure that the company supplied the interior panelling for the South African Royal Train and that plywood is finding use also in construction in the form of laminated pillars, plywood bent to shape, and prefabricated units requiring the minimum of fitting. The versatility of the material is shown by the fact that it can be made in thicknesses varying from $\frac{1}{32}$ in. to 3 in. Numerous other applications, which are illustrated, most famous of which is, of course, fabrication of parts for aircraft, prove the truth of this claim. Two other interesting sections of the publication are a clear account of the manufacturing processes used at the firm's Isle of Wight factory and a chapter on research, foreshadowing new uses for plywood.

Mechanical & Electrical Engineering Organisation, British Railways

A standardised departmental organisation decided on by the Railway Executive at Executive Headquarters and throughout the Regions

THE organisation of the Mechanical & Electrical Engineering Department at Railway Executive level, follows closely the organisation of the Executive itself, which has a line of Members with functional responsibility in their fields. Under Mr. R. A. Riddles, Member for Mechanical & Electrical Engineering, there is similarly a line of Officers, one for each of the activities he controls, and it is convenient to list them here and to explain their activities later:—

(1) Chief Electrical Engineer
(2) Chief Officer: Locomotive Construction & Maintenance
(3) Chief Officer: Carriage & Wagon Construction & Maintenance
(4) Executive Officer: Design
(5) Executive Officer: Road Motor Engineering
(6) Executive Officer, Administrative & Special Duties

It will be observed that a severance has been carried out at this level between Locomotives and Carriage & Wagons; this severance is also to take place in the Regions. Having regard to the traditions established over a number of years, this may seem somewhat revolutionary, for these activities have for long been centred in one Officer, namely, the Chief Mechanical Engineer.

It will be remembered, however, that before the 1923 amalgamations it was the practice of some of the larger companies to have the Locomotive Department under a Chief Mechanical Engineer and the Carriage & Wagon Department under a Chief Carriage & Wagon Superintendent, so that there is a precedent for the new organisation. There is no doubt the companies in question found it convenient, owing to their size, to have this division, and the need of separation is much more pronounced today. In any event the interests of the Locomotive Engineer and the Carriage & Wagon Engineer are in practice somewhat divergent.

Under nationalisation, on account of size alone, and irrespective of other factors, although these are important, it is essential to separate the activities, which will be more readily appreciated when it is realised that in each sphere of activity there are no less than 40,000 employees. It has to be appreciated, also, that the carriage and wagon engineers have had to take over the private owners' wagon stock, representing £43,000,000 of capital.

First of all, then, each Region will have:—

(1) A Mechanical & Electrical Engineer
(2) A Carriage & Wagon Engineer

It is proposed, however, to retain many common services, such as Accounting, Staff Departments, Metallurgy, Drawing Offices, and the like, where (as will usually be the case) this will be convenient owing to the headquarters of each being in the same vicinity, chiefly, of course, at or near one of the principal railway works.

In the Regions there is to be no split between Mechanical & Electrical Engineering, one Officer being responsible for both activities, which is consistent with the trend on railways, where, apart from the traction angle, many operations are carried out by mechanical and electrical power or by a mixture of both forms of energy. In fact, the two forms of engineering are so frequently concomitant that now it is only in the highest administration that separation is desirable in the stage so far reached in the evolution of power machinery.

Immediately under the Member for Mechanical & Electrical Engineering at the Railway Executive, these activities will be supervised and co-ordinated as between the Regions by the Chief Electrical Engineer, the Chief Officer for Locomotive Construction & Maintenance, and the Chief Officer for Carriage & Wagon Construction & Maintenance.

Insofar as motive power is concerned, in the Regions the Officers in charge of this activity have been given relative rank with the Officers of other Departments, being directly responsible to the Chief Regional Officers for matters coming within their functions. At Executive level the Member for Mechanical & Electrical Engineering has a joint responsibility with the Member for Operating as shown on the chart.

The function of the Chief Electrical Engineer is obvious from his title, but, in addition to his responsibility for electric traction and power generation, he will also have a joint responsibility with the Chief Officer, Locomotive Construction & Maintenance, for diesel or gas turbine locomotives with electrical transmission, although the general form of such locomotives shall be a joint responsibility of the Chief Electrical Engineer with the Executive Officer (Design). Diesel or gas turbine locomotives having mechanical transmission, however, are the responsibility of the Chief Officer, Locomotive Construction & Maintenance. The Chief Electrical Engineer will also collaborate with the Chief Officer, Carriage & Wagon Construction & Maintenance, in the production and maintenance of multiple-unit electric stock.

Nationalisation aims at standard practices which will lead to economy of money and effort, and it is obvious, therefore, that it can no longer be left to Mechanical, Electrical, or Carriage & Wagon Engineers in the Regions to develop their particular theories and practices, as was the case when individual companies existed. So that the best of each shall continue aided by the new ideas of all, and so that the more efficient methods and practices shall be blended into the locomotives and rolling stock to be built in future by British Railways, a co-ordinating Officer has been appointed under the Member, known as Executive Officer (Design).

There have been varying practices on the old companies in regard to the provision of outdoor machinery, but the division of responsibility now as between the Civil, Mechanical, and Electrical Engineers is as described below.

The Chief Officer (Locomotives) shall have full responsibility for all outdoor machinery, specifying in conjunction with the Executive Officer (Design) the form and arrangement of the machines, except that the Chief Electrical Engineer will in conjunction with the Chief Officer (Locomotives) specify the electrical equipment.

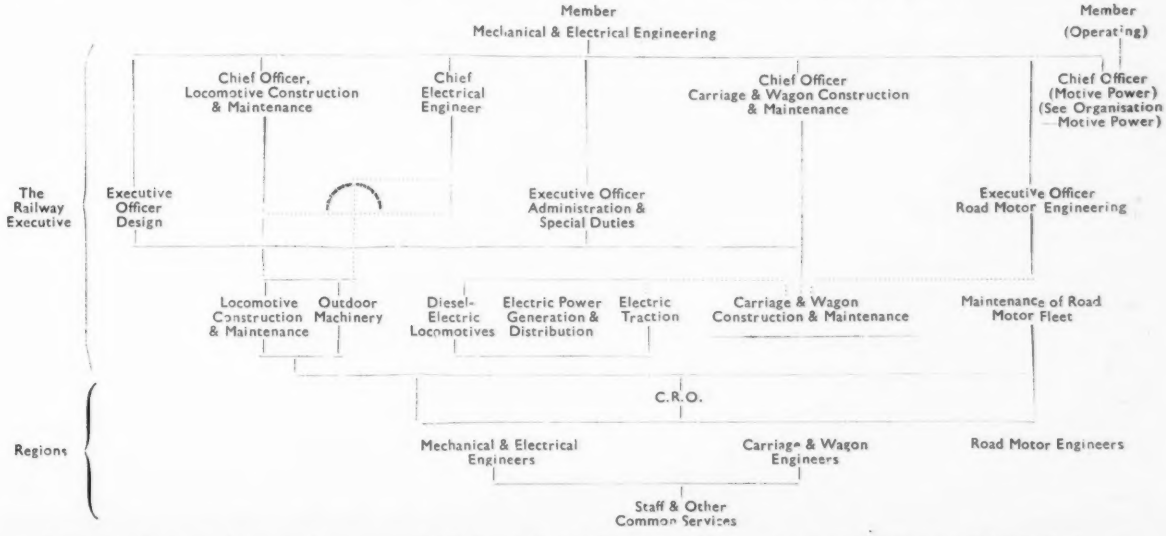


Diagram showing the recently approved Mechanical & Electrical Engineering organisation of British Railways

In the Regions, the Mechanical & Electrical Engineer will take care of maintenance. Insofar as the lighting of premises is concerned, the Member for Civil Engineering will be responsible for the general definition of requirements, but the installations will, in electrical schemes, be carried out by the Chief Electrical Engineer, and maintenance by the Mechanical & Electrical Engineer.

Furthermore, it is recognised that rigidity in the application of departmental responsibility for the maintenance of outdoor installations should not obtain, and where, owing to local conditions, economy and efficiency would result from the Civil Engineering Department, acting as agent for the Mechanical & Electrical Engineers or *vice versa*, this will by mutual agreement be the practice.

Road Motor Engineering was also placed under diverse authorities on the old companies. As already shown an Executive Officer has been appointed on the staff of the Member (Mechanical & Electrical Engineering) at the Railway Executive. He will have his counterpart in each Region, and these Road Motor Engineers will be Officers in their own right responsible to the Chief Regional Officers direct and to the Executive Officer under the Member.

At the Railway Executive on the staff of the Member there is, finally, an Executive Officer (Administrative & Special Duties) to deal with all railway matters of a non-technical character, but on which the Member requires data and information for the general purposes of the Executive. This officer also deals with staff matters, special enquiries, and investigations, and the internal administration of the Department.

The organisation is summarised on page 719 in chart form, the continuous lines showing direct responsibility and the channels therefor, and the dotted lines joint responsibility or collaboration of one Officer with another.

Ten-Year Development Programme of the Swiss Federal Railways

Many sections are to be doubled and stations and yards remodelled

A TEN-YEAR development programme recently drawn up by the Federal Railways involves an annual expenditure averaging fr. 190 million (approximately £10,950,000), including fr. 126,000,000 for lines, plant and installations, fr. 51,000,000 for locomotives and rolling stock (inclusive of railcars and electric coaches), fr. 7,500,000 for extensions to power stations and building of new power stations, and fr. 5,500,000 for extensions to repair shops. Of the total annual expenditure, fr. 122,000 000 account for replacements, and fr. 68,000,000 for development work proper.

The development programme envisages the following main items:—

(*a*) Duplication of lines totalling 141·6 route-miles (228·11 km.), at an expenditure of fr. 219,000,000. This includes besides the sections already in hand, as enumerated in our November 19 issue, the following stretches:—

Section	Miles	Line
Yverdon—Vaumarcus	9·9	Yverdon—Neuchâtel
Vaumarcus—Boudry	8·8	Yverdon—Neuchâtel
Bienne—La Neuveville	9·3	Bienne—Neuchâtel
Moutier—Choindez	3·7	Bienne—Basle
Sion—Granges-Lens	6·2	Montreux—Brigue
Thalwil—Horgen Oberdorf	3·1	Zurich—Lucerne
Giubiasco—Cadenazzo	5·6	Bellinzona—Luino
Rotkreuz—Immensee	5·0	Aarau—Arth-Goldau
Rorschach—St. Gall—St. Fiden	8·8	Zurich—Rorschach
Winterthur—Grüze—Räterschen	1·8	Zurich—Rorschach
Zurich—Meilen	12·4	Northern shore of Lake of Zurich
Sargans—Coire	16·2	Zurich—Coire

The duplication of the three first-named sections, in addition to that in progress between Boudry and Auvernier, would provide uninterrupted double-track working between Yverdon and Bienne, 41 route-miles, the most heavily-taxed section of the alternative route between Zurich and Geneva which acts as a relief to the Zurich-Berne-Lausanne route.

(*b*) New lines between Geneva Cornavin Station and La Praille (now building); at Basle, the provision of separate lines for passenger traffic and goods traffic, and replacement of the old bridge over the Rhine between the Central Station and the German Station; at Lucerne, a new double-track approach line to the main station; at Zurich, a new double-track goods line between Zurich Central Station and Oerlikon; at Lyss (Berne-Bienne line), realignment of the line for Aarburg to avoid reversing Soleure-Lyss-Chiètres traffic; at Meiringen (metre-gauge Brunig line), realignment at Meiringen to avoid reversal. The expenditure for this work is put at fr. 49.000.000.

(*c*) Comprehensive extensions to, and development of, stations, absorbing fr. 211,000,000, covering Lausanne Sébeillon goods station (fr. 12,000,000); Berne passenger station (fr. 55,000,000); Olten local goods station (fr. 12,000,000); Muttenz (Basle) marshalling yard and Wolf goods station (fr. 15,000,000); Basle St. Jean Station (fr. 5,000,000); Langenthal Station (Olten-Berne main line) (fr. 10,000,000); Lucerne, development of passenger station and transfer of goods station (fr. 15,000,000 for the first stage only); Zurich, first stage of the wholesale reorganisation of the central passenger and goods station, comprising the Zurich-Seebach and Oerlikon Stations and a new marshalling yard (fr. 64,000,000); Buchs (fr. 10,000,000); Horgen (Zurich-Lucerne main line) (fr. 7,000,000); Richterswil (Zurich-Coire main line) (fr. 6,000,000).

(*d*) Electrification, costing fr. 15,000,000, covering: Monthey-St. Gingolph (Suisse) on the French frontier at the eastern end of the Lake of Geneva (13 route-miles); Geneva-La Plaine (French frontier), double-track line (9·3 route-miles); Olten-Sissach *via* the old Hauenstein tunnel (11·9 route-miles); Cadenazzo (Bellinzona-Locarno line)-Ranzo (Italian frontier near Luino) (9·3 route-miles); Winterthur-Wald (24·8 route-miles); Oberglatt-Niederweningen (in hand) (8 route-miles).

(*e*) Replacement of level crossings by about 25 underbridges or overbridges, absorbing contributions by the Federal Railways totalling fr. 12,000,000.

(*f*) Motive power and rolling stock. Twenty to 30 electric locomotives and other power vehicles costing fr. 30,000,000; 360 lightweight steel coaches (fr. 90,000,000).

(*g*) Development of power stations, including a second barrage for the Ritom power station (Gotthard line) and heightening of the existing barrage of the Barberine power station (in the Martigny region), and other work, totalling fr. 26,000,000.

(*h*) Development of repair shops at Yverdon and Olten totalling fr. 28,000,000.

The whole of the work specified above considered as of urgent necessity, means an expenditure of fr. 680,000,000, or fr. 68 million annually.

Replacements will absorb fr. 122 million annually, as mentioned before, the main item, fr. 45,000,000, referring to superstructures and smaller extensions, the second-largest item (fr. 40,000,000) to motive vehicles and rolling stock, and the smallest item (fr. 2,000,000) to repair shops.

The financing of this great programme opens up new problems, as the Federal Railways are unable to provide alone all the means required. Some fr. 40,000,000 out of the annual total will be a burden to the working account; fr. 107,000,000 of the remaining fr. 150,000,000 are to be covered by ordinary and extraordinary depreciation and also by having recourse to the depreciation reserve amounting to fr. 136,500,000.

Method of Finance

The financing of the remaining fr. 43,000,000 is not possible on the basis of existing financing methods. A novel solution is being sought, particularly as the development of the railways will continue after the conclusion of the Ten-Year programme, while depreciation funds will be on the decline.

The only solution so far deemed possible is the financing by contributions from the Confederation, the Cantons and the interested municipalities in the same way as the two latter contribute towards the building costs of roads, airports, and so on. New legislation in this respect will have to be drafted in the new Railway Act which now is being prepared.

LONDON TRANSPORT GREENWICH GENERATING STATION.—For some years the Greenwich Generating Station of London Transport has been undergoing a gradual process of reconstruction and enlargement, and a further stage has now been reached with the commencement of work on another 20,000 kW. turbo-alternator set to work on 50 cycles. When the L.P.T.B. took over the station from the London County Council in 1933 all the machines then feeding current to the former L.C.C. trams were designed to generate at a frequency of 25 cycles. To increase output, and also to bring Greenwich into line with other power stations, a programme was embarked on before the war to equip the station with seven 20,000-kW. sets to supply current at a frequency of 50 cycles. Three already are in service at the new frequency, and are supplying electricity not only to London Transport trams and trolleybuses, but also to the Underground railway system and the National Grid. Three others of similar capacity are working on 25 cycles. It is hoped that the new set will come into service next summer.

Radar for Tilbury-Gravesend Ferry

Installed by the London Midland Region to provide better service during foggy weather

A RADAR station has been established by the London Midland Region of British Railways for the Tilbury-Gravesend ferry, which carries 3,000,000 passengers and 150,000 vehicles across the Thames every year. There have been occasions when this service has had to be suspended entirely during very foggy weather, and such interruptions cause great inconvenience to the many people employed at the Tilbury Docks of the Port of London Authority whose homes are in Gravesend.

As from the beginning of 1949, however, when fog descends on the river, from the time each vessel sails until it is safely berthed at the other side, the Master will receive over loudspeakers on the bridge a detailed commentary on his progress and the movements of other traffic in the river as seen on the indicator screen. The Master can, if necessary, speak to the radar operator.

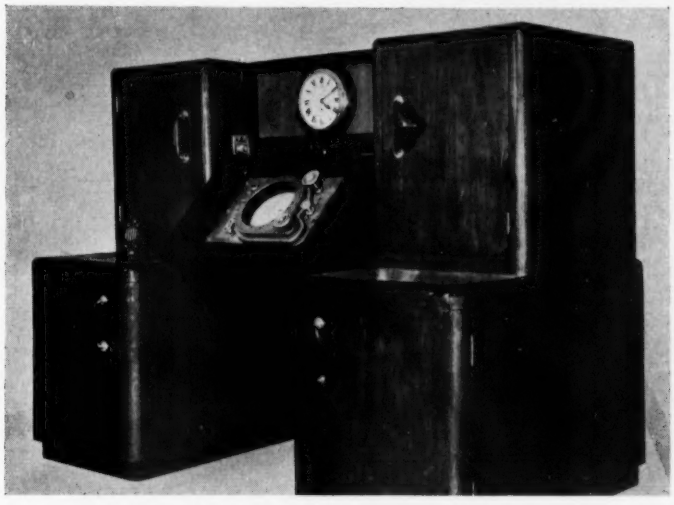
The radar unit at Tilbury, which was installed by Consor Radar Limited, has ranges of 0·8, 1·2, and 3 nautical miles, and with these scales the operator can observe the ferries themselves at close range, or, alternatively, see them in relation to other vessels some miles away. If, during foggy weather, a radar equipped ship is approaching the crossing place, the operator can warn the ferry in ample time.

The indicator mechanism is enclosed in a console which comprises a special fitting supporting the indicator screen at an angle which permits the P.P.I. picture to be studied from a comfortable sitting position. Above the indicator are switches for the Marconi Simplex transmission equipment, together with remote controls for the normal room lighting, whilst the panel above frames an 8 in. dia. marine timepiece, flanked by dual matched speakers. Cupboards on either side of the centre unit contain the ancillary electrical equipment.

The indicator console is placed in a room at ground level adjoining the booking hall at Tilbury Station. In the centre of this hall is a booking and luggage office, above which has been placed the alternator, rectifier, and other electrical equipment. In the clock tower over the station roof the main rack is housed, and above this again, topping an 18-ft. tubular mast, is the scanner unit.

Many points had to be borne in mind before the most suitable site for the scanner was found, but here, 80 ft. above ground, and at a horizontal distance of some 120 yd. from the ferry arrival platform, it is in a position which enables it to satisfy all requirements.

The radar scanner on the roof of Tilbury Station



The specially designed console housing the indicator unit

Transmission to the scanner is by a 30-ft. run of standard waveguide. The aerial beam width is $\pm 1°$ on the horizontal beam and $\pm 15°$ on the vertical, and speed of rotation is approximately 32 rev. per min. The transmitter equipment works on a frequency band between 9,425 and 9,525 Mc/s per sec., output power 30 kW., pulse width 0·2 microseconds, repetition 2,000 pulses per sec. The band width of the receiver is ± 4 Mc/s per sec. at 3 decibels.

The indicator utilises a special 9-in. cathode ray tube operating at a voltage of 8 kV. The screen material is a special fluoride composition having long "afterglow" and almost total absence of primary flash. Separation is made between two objects differing in bearing by more than 2° or in range by more than 40 yd. The cable run between the main rack and the indicator is 75 ft.

The entire equipment operates from 180 volts 500 cycles obtained from a 110 d.c. supply by means of a rotary converter. This converter is fed from a 3-phase a.c. supply *via* a mercury pool rectifier. The power consumption is 2·5 kW. *plus* an additional 1 kW. for scanner heaters when the atmospheric temperature drops below 0° C.

AWARD FOR CLOAKROOM ATTENDANT.—An award and a letter of commendation from the Commercial Superintendent, Eastern Region, have been presented to Mr. H. Branston, cloakroom attendant, whose prompt action on two occasions, on becoming suspicious of parcels handed in to him at Nottingham Victoria Station, resulted in the arrest of certain persons for being in the possession of stolen property.

EXCURSION FACILITIES FOR 1949.—Since the issue of day, half-day, and evening excursion facilities was re-introduced by British Railways, nearly three million passengers have been carried at excursion fares on special trains alone, in addition to the many thousands of other passengers by ordinary services. Besides these excursions, two further pre-war facilities are to be reinstated from January 1, 1949. Walking-tour tickets will be issued in suitable areas adjacent to big centres of population so that ramblers and the public can travel out to one station and return from another. These day tickets, which will be issued for first and third class travel at about the single fare for the double journey, were one of the most popular facilities, particularly at weekends and holidays, before the war, and details of their issue will be announced Regionally. For members of rambling and cycling organisations planning a longer holiday and a varied itinerary, British Railways will issue touring tickets at about a third less than point-to-point single fares. By previous arrangement with British Railways, these tickets may be obtained on presentation of a voucher issued by recognised walking and cycling tourists' organisations to their members. Under this arrangement, cyclists also will be able to take their bicycles with them at a reduced rate, though accommodation for cycles on certain trains may necessitate local restriction on occasions during the summer months.

BRITISH COLUMBIA ELECTRIC RAILWAY.—The net profit for the last financial year was $1,071,550 after payment of tax, which compares with $1,501,208 for the previous twelve months, and the carry-forward is increased from $132,431 to $226,384.

Engineering Library

Maidenhead Bridge, Western Region

Some interesting and unusual features of a Brunel design of 1837

Bridge widening in progress in 1882

AN interesting contrast in styles is provided between the Ballochmyle Viaduct, Scottish Region, a description of which appeared in our issue of August 27, 1948, and the Maidenhead Bridge which carries the main lines from Paddington to the West over the Thames at Maidenhead.

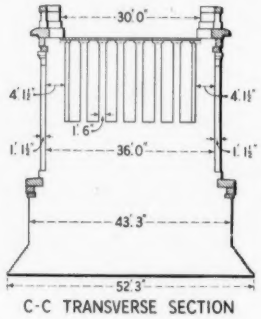
The line between Paddington and Maidenhead was opened on June 4, 1838, but Maidenhead Station in those days was located east of the site of the bridge over the Thames, with the intention that it should be moved westward as soon as the line was extended. This extension was opened as far as Twyford in July, 1839, but Maidenhead Station was not resited until the year 1871.

The line beyond the first Maidenhead Station included the construction of a bridge to carry two lines over the Thames which at the point to be crossed was just under 300 ft. wide. Brunel designed a bridge to be constructed in brick, and embodying two of the flattest and largest arches which had ever been constructed; indeed, it would be difficult to find any bridge today of comparable proportions.

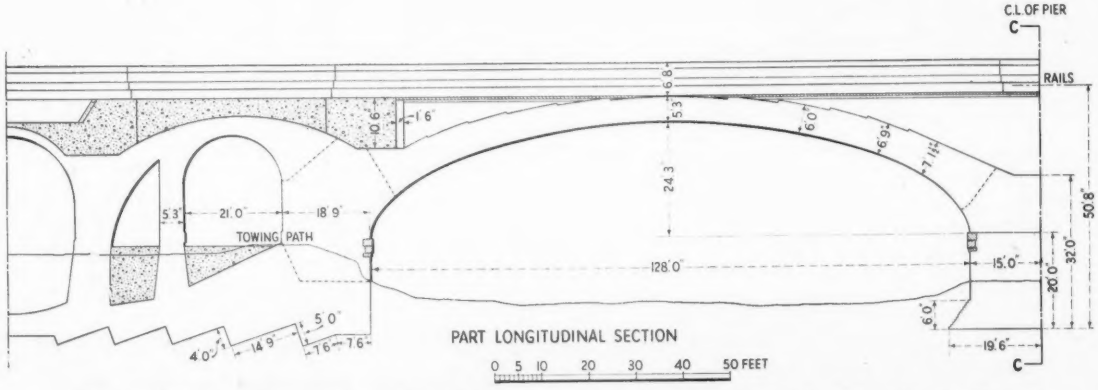
Two semi-elliptical arches, each having a span of 128 ft. and a rise of only 24 ft. 3 in., bridged the river, with a centre pier founded on a shoal which existed in the river centre. The structure is flanked on each side by four semi-circular brick arches, one of 21-ft. span and three of 28-ft. span, providing additional waterway in time of floods. The bridge is founded on a hard gravel conglomerate overlying chalk.

Brunel was criticised strongly for this design and his critics were certain that the arch would fail when the centres were struck. A contract for the construction of the bridge was let in 1837, and, when the centres were first eased in the Spring of 1838, an apparent slight distortion appeared in the eastern arch. It transpired, however, that this was due to the first three rings becoming separated by ½ in. for about 12 ft. each side of the crown of the arch, resulting from faulty work for which the contractor admitted full liability. These rings were cut out and replaced and no trouble has been experienced since. The western arch was perfect from the beginning. The radius of curvature at the crown of these large arches is 165 ft.

In 1882 the bridge was widened to carry four tracks, and the widening was carried out each side of the existing bridge, with the old profile and elevation substantially reproduced in the new work. Apart from this, no structural repairs or works have been carried out since the erection of the bridge.



C-C TRANSVERSE SECTION



Longitudinal and transverse sections of Maidenhead Bridge from an original drawing by Brunel

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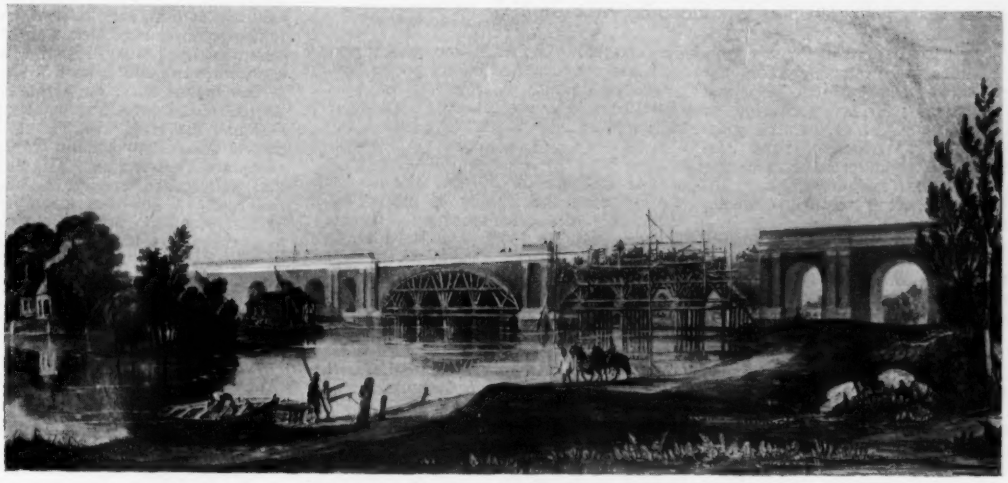
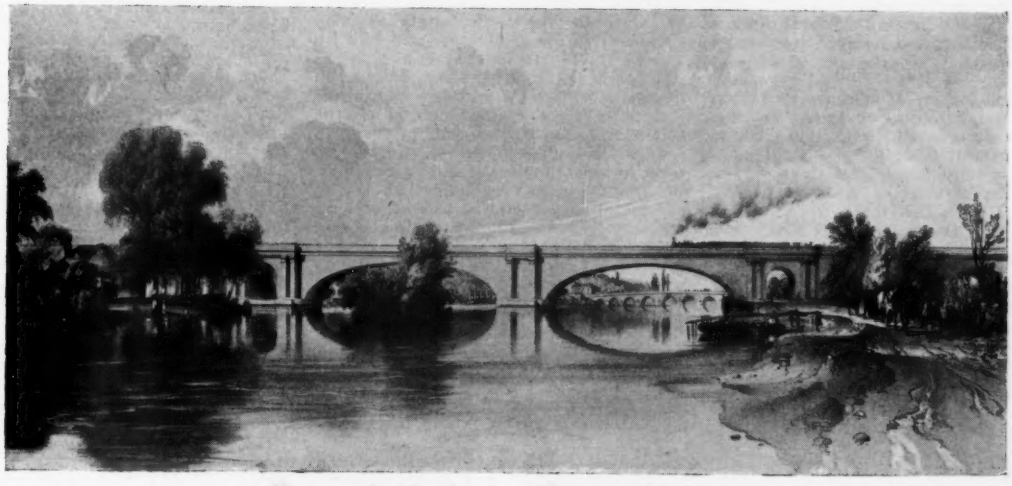
MACHINE TOOLS FOR BRAZIL.—The firm of E. H. Jones (Machine Tools) Limited has shipped more than £300,000 worth of machine tools to Argentina this year. The firm has now received a further £110,000 order through its Buenos Aires agents, Casa A. C. Saldanha, Buenos Aires 66, Rio de Janeiro, acting in co-operation with A. G. Briten, S.R.L., Buenos Aires. This new order is for C.V.A. No. 8, 12, and 20 automatics, filing and sawing machines, bandsaws, C.V.A. dieing presses, Essex punch shapers, and Sigma milling machines.

NEW DRIVE FOR TOURIST DOLLARS.—Sir Alexander Maxwell, Chairman of the British Tourist & Holidays Board, who recently announced that a record number of 150,000 tourists from America and Canada might be expected in Great Britain next year, is visiting the U.S.A. to report on the progress of the campaign. An intensive advertising campaign launched by the Tourist Division, coupled with the announcement that visas are not now required by American tourists visiting this country, has greatly increased American interest in travel to Great Britain. To deal with the rapidly increasing volume of inquiries the New York office is to be moved from Fifth Avenue to much bigger premises at 336 Madison Avenue.

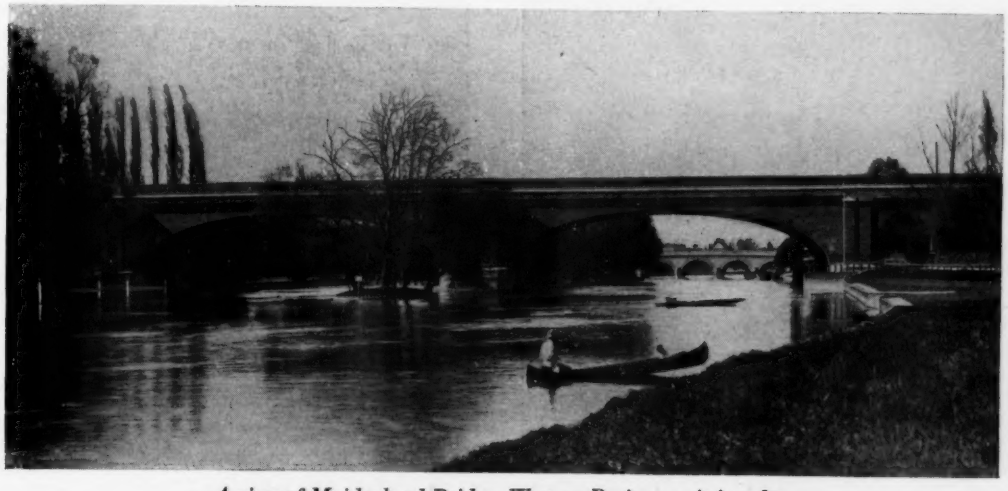
Maidenhead Bridge, Western Region



A reproduction from an old print showing Maidenhead Bridge in course of construction



From a print showing the bridge as originally built



A view of Maidenhead Bridge, Western Region, as it is today

Single-Line Working on the Victorian Railways

A review of fifty years of operating single lines by electric train staff

THE electric staff system for working single lines was introduced on the Victorian Railways on April 21, 1897, and an inconspicuous reference appearing in the Weekly Notice No. 41, of that year, stated that: "On Wednesday next, 21st inst., the present tablet instruments in use between Moorabool and Gheringhap will be withdrawn and electric staff instruments substituted."

Miniature electric staffs and instruments were introduced on the Buangor-Dobie-Ararat sections in 1912, and by the end of 1913, the single-line sections between Melbourne and Serviceton, and Seymour and Albury were similarly equipped. In 1926, automatic exchangers were introduced at staff stations between Seymour and Albury, and since have been installed at other stations. The delivery apparatus is formed by a steel cup, in which the pouch and ring are held by steel springs. The receiving portion consists of a spear at the end of an impact-breaking spiral. The exchanger hoop is a large wad of leather about one in. thick and six in. in dia., through which is passed a ¼ in. steel ring, 9 in. in dia., and the staff is passed through a roll of leather and fastened by a strap.

Intermediate Sidings

The staff locking of intermediate sidings had begun before the electric staff and was made standard on all electric staff sections. At the present time, practically all intermediate sidings and points on staff sections are staff locked. With the type of staff locking in use, the rear end of the electric staff is inserted in a lock on a sleeper next to the main-line point blade. A turn to the right releases the points, the operation of which backlocks the staff. On replacement of the points, the staff can be released. The main-line points generally are connected to safety points, catch points or derails. A drawer type of lock provides similar protection at places where a miniature electric staff is used.

The Divided Staff

The first use of divisible electric staffs for relaxing the rigidity of electric staff working was not for permissive working.

Some time in 1900 or 1901, it became necessary to open Connewarre as a staff station occasionally to enable ballast and race trains to leave and rejoin the main line there. To avoid the provision of electric staff instruments there, and maintenance as a permanent electric staff station, a special staff was provided in the instrument at Queenscliff Junction for the section to Mount Moriac. On the release of this staff, it was separated and the two portions of it provided the two train staffs for the short sections Queenscliff Junction-Connewarre and Connewarre-Mount Moriac. Staff ticket boxes were provided at these three places, enabling staff and ticket (with telegraph block) to be worked. The staff for the section Connewarre-Mount Moriac was sent to and returned from Connewarre as a parcel, and on the return of the two portions to Queenscliff Junction, their insertion in the instrument there enabled normal electric staff working to be resumed.

Other variations of this idea have been used, including the use of three-piece staffs, the centre piece being used as a key to release the interlocking at the intermediate station. This special staff is now known in the instruction as a divided staff and is provided for opening seven temporary staff stations.

The divisible electric staff, as used to enable purely following movements to be made, did not appear until October, 1907, when a special staff provided in the electric staff instrument at Croydon for the Lilydale section, enabled two trains to be following in that electric staff section, but separated by the working of Mooroolbark as a telegraph block post.

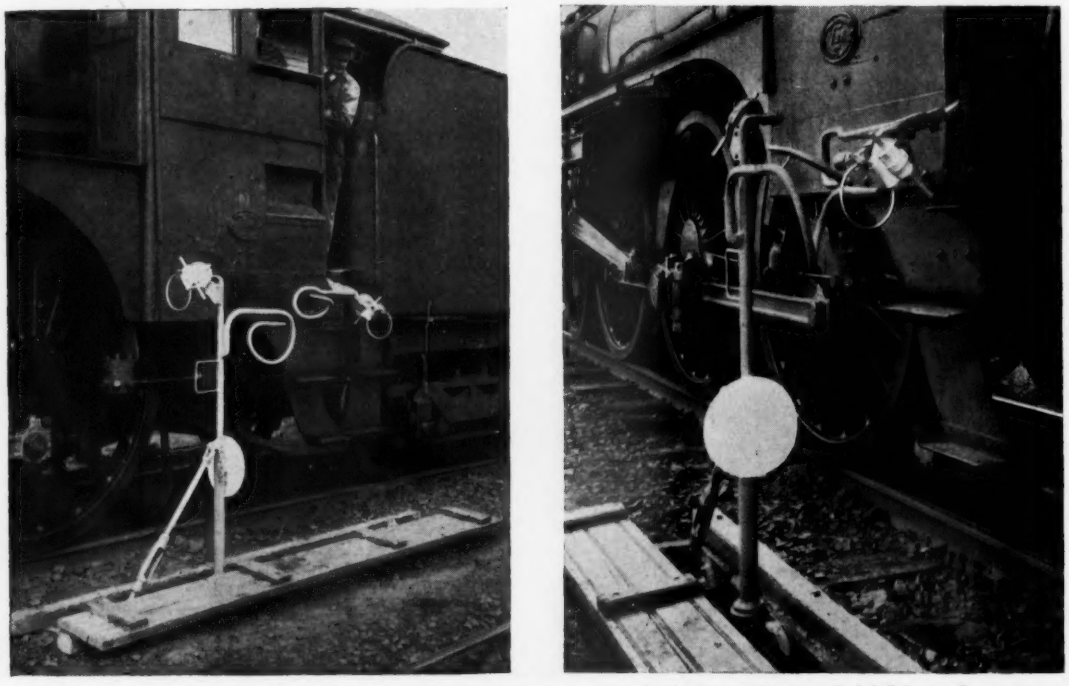
The special staff, on withdrawal, could be unscrewed into three portions known as Staff, Ticket A, and Ticket B, and the section was then virtually worked as one staff and ticket section. The driver of the first train was given Ticket A and shown the Staff. On the telegraphed advice of arrival of the first train (complete) at Mooroolbark, the second train, the driver of which carried Ticket B and also saw the Staff portion, was allowed to leave Croydon.

Similarly, the third driver carried the Staff portion, and the second and third trains waited at Mooroolbark until the telegraphed advice of arrival of the previous train at Lilydale. When all three portions were reassembled and inserted in the instrument at Lilydale, normal electric staff working was resumed. This arrangement was in use for many years on Sundays, from February, 1908, until Mooroolbark was opened as an electric staff station in April, 1922.

Composite staffs now are provided on 82 sections.

Short Section Working

The divided staff offered one solution to the problem of opening staff stations for short periods, such as at Curdies River Junction and Burrumbeet Racecourse Junction. Similar relief was obtained at times by the working of two staff and ticket sections in lieu of one electric staff section, the electric staff being withdrawn and the two staffs for staff and ticket working released by the block and signal inspector. This arrangement is still used when necessary, particularly where a staff station is required for one crossing only.



Staff exchanger apparatus, Victorian Government Railways, seen (left) just before, and (right) at the moment exchange is effected

However, some method of working electric staff on both long and short sections soon proved necessary.

The first use of a switching instrument occurred at Timboon Junction (late Curdies River Junction) in 1911. The switching instrument consists of a box with three apertures and containing the electric switches for the circuits concerned and is situated at the part-time staff station. In the outer of the three apertures are normally the two electric staffs for the two short sections. On the insertion of the long section electric staff in the central aperture and its subsequent back locking, the long section staff line is interrupted, the two short section staff lines are connected and the two short section staffs released. It will be seen that as a long section staff is required at the intermediate staff station, a train is needed to enable the station to be opened.

The instruments for the opening and closing of an electric staff station independently of a train were used for two consecutive stations, Pirron Yallock and Pomborneit being enabled to switch out, forming the long section Colac-Camperdown. This installation, which is for miniature electric staff, was made in 1929.

The next installation of switching instruments took place at Deep Lead and Wal Wal on the main Western line in March, 1932. The switching out of these stations enables two long sections, Stawell-Glenorchy and Glenorchy-Lubeck, to be worked, and the process of switching in or out can be performed without a train. The switching is complicated by the stations being interlocked and at Deep Lead track locked between distant signals. Miniature electric staff is used on all sections.

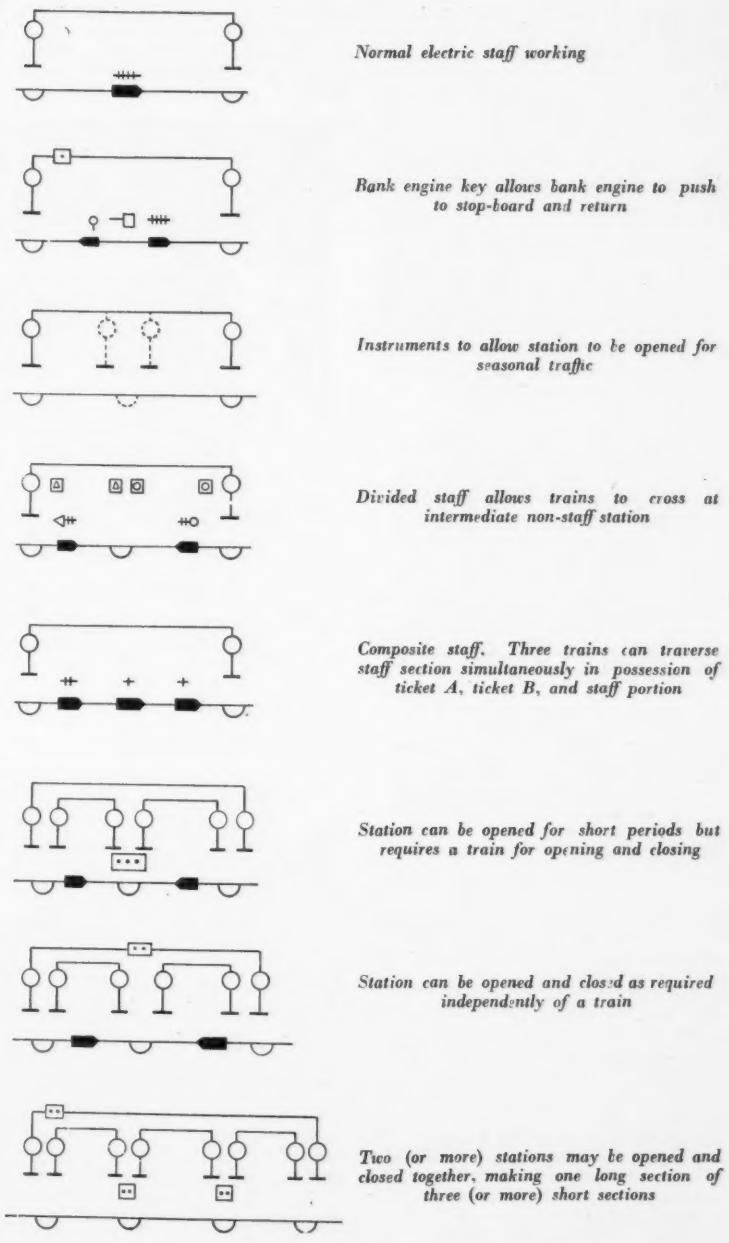
The apparatus consists of a switching instrument, with three apertures, connected by a rod to a lever lock operated by the closing lever and a key switch showing the indications "in," or "out," these two items being located at the intermediate station. When the station is switched out, a staff for each local section is secured in the two outer apertures of the switching instrument, the key switch shows "out" and the signals for the main line are cleared in both directions.

To allow Deep Lead, for instance, to switch in, after the Deep Lead key switch has been turned to "in," Stawell "B" and Glenorchy hold down their bell keys, and this enables the Deep Lead closing lever to be placed in the mid-position. The signal levers, and subsequently the closing lever, are then placed to normal, the latter releasing the locking on the two local staffs in the outer receptacles of the switching instrument. The working of the closing lever also interrupts the through line wire, and short section working then can be commenced.

Switching out is accomplished by the insertion and locking of the two local staffs in the outer apertures of the switching instrument, the turning of the key switch to "out," and after operating the closing lever to mid-position, the signals can be cleared both ways. The placing of the closing lever in the full reverse position completes the through circuit and long section working can be resumed.

The interlocking at these stations can be freed for shunting purposes by the insertion of a long section staff in the central aperture of the switching instruments, and the moving of the closing lever. The staff is then backlocked until the replacement of all points and signals to their correct position (as when switched out) and the replacement of the closing lever.

Thirty-five electric staff stations are provided with these switching instruments, of which 16 use large electric staff, 17 are interlocked and 4 are track locked.


Normal electric staff working
Bank engine key allows bank engine to push to stop-board and return
Instruments to allow station to be opened for seasonal traffic
Divided staff allows trains to cross at intermediate non-staff station
Composite staff. Three trains can traverse staff section simultaneously in possession of ticket A, ticket B, and staff portion
Station can be opened for short periods but requires a train for opening and closing
Station can be opened and closed as required independently of a train
Two (or more) stations may be opened and closed together, making one long section of three (or more) short sections

Schematic diagrams, staff exchanger apparatus

Consecutive Stations

A further development of this type of switching with large electric staffs took place on the South Western line in May, 1940, when Panmure and Allansford, adjacent staff stations, were enabled to switch out to form the long section Terang-Warrnambool.

These stations are non-interlocked, and consequently, the apparatus is simplified. A two-aperture switching instrument is provided at Panmure and Allansford and, during long section working, staffs for the sections Panmure-Allansford and Allansford-Warrnambool are secured in the instrument at Allansford, while a staff for the section Terang-Panmure is secured in the right-hand aperture of the instrument at Panmure. To switch in, the holding down of through section bell keys at both Terang and Warrnambool enables the two local staffs to be released at Allansford. On the insertion of the Panmure-Allansford staff at Allansford and the withdrawal of another at Panmure, this is inserted in the left-hand aperture of the switching instrument at Panmure and releases the Terang-Panmure staff.

To switch out, the three local staffs are placed in their correct places in the two switching instruments and on the turning of the switching instrument handle to "out," the "through" circuit is completed and long-section working may be resumed.

Reference has been previously made to the necessity of opening Connewarre as a

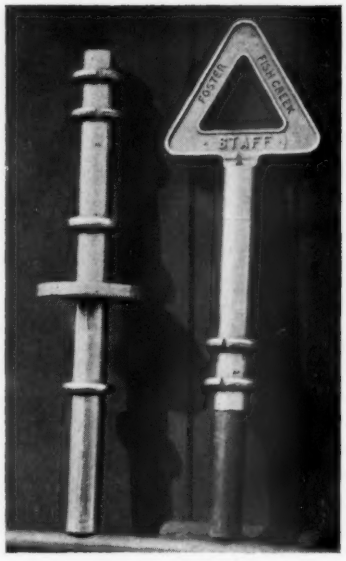
staff station to enable branch trains to leave and rejoin the main line there; this arrangement was before the introduction of intermediate, or subsidiary, electric staff instruments, the first of which was provided at Chiltern Valley bailast siding in the electric staff section Springhurst-Chiltern in April, 1922. On the arrival, clear of the staff locked points, of a train requiring to use the siding, the electric staff for the section is inserted in the intermediate instrument, thus restoring the phase of the two other instruments and allowing main-line traffic to pass through the section. Similarly, the extraction of a staff there enables the side-tracked train to rejoin the main line and proceed in either direction. Intermediate instruments are provided at fifteen locations.

During the early years of the recent war, it was necessary to construct a number of crossing loops on three of the inter-state main lines, to reduce the running times between previous crossing stations. On those sections worked by large electric staff, a divided staff provided the necessary train staffs for use on the two short sections thus formed, but where miniature electric staff was in operation, special apparatus had to be provided.

This consisted of a special switch box at the electric staff station on the up side, in the two outer apertures of which are secured the two train staffs during electric staff working. On the insertion of a miniature staff in the central aperture, the two train staffs are released and the staff for the remote section waybilled to the intermediate station with the guard of the first train, similarly to the divided staff. Eight of these pieces of apparatus were provided simultaneously in October, 1940.

Staff Exchange Boxes

There have been a number of different methods of allowing trains to work through electric staff stations outside the hours of attendance of the signalman. During the early 1900s, a staff box was in use at various stations, in which the signalman left the electric staff for the section in advance before going off duty. The guard of the train provided with a key to the box, exchanged the staffs and on resumption of duty by the signalman, usually the next morning, the staff for the section in the rear was placed in the instrument, and provided train arrival had been received from the staff station in advance, train arrival was given to the staff station in the rear.



Divided electric train staff, as used on Victorian Railways

These staff boxes were gradually replaced by the Staff Exchange Box, in which the staff for the section in the rear allowed, and was subsequently back locked by, the release of the staff for the section in advance.

A modification of the staff box principle involving the use of the composite staff, enables up to three trains to work through temporarily unattended staff stations under these conditions. Telephone block is maintained between the two adjacent attended stations, or in some cases the guard telephones his arrival from the intermediate station.

In May, 1929, two installations of automatic instruments were made. These were at Mysia and Barraport the sections being Korong Vale - Mysia - Boort - Barraport-Quambatook. On holding down his bell key and operating the magneto generator, the signalman at Korong Vale, for instance, can extract a staff without the attendance of a signalman at Mysia. The guard of the train, on arrival at Mysia, replaces the staff for the section in the rear, and asks permission from Boort for a staff in the normal way. It will be seen that these installations are only automatic at one end. The great difficulty with automatic instruments at such unattended stations is the provision of signalling sufficient to prevent the entrance of an up and down train simultaneously, and at the same time enable a clear run into the station from either direction for trains arriving separately.

This is covered by an up and a down automatic signal, normally showing a caution indication, which are approach cleared by an arriving train, and return to the danger position when the platform road is occupied, when the facing points are unlocked, or when a train is approaching from the opposite direction.

To enable electric staffs which have accumulated at one end of the section, to be transferred to the other end, portable balancing magazines were installed on the Bacchus Marsh-Ingliston and other sections in 1920, and are now in use on 38 sections. One of the causes of accumulating staffs, is where a large number of trains proceeds in one direction during long section working and in the reverse direction during short section working.

The attachment of the balancing magazine to the rear of the miniature electric staff instrument in which the staffs have accumulated allows the staffs to be passed from the instrument to the magazine and its removal relocks the magazine and the rear aperture of the instrument. The magazine is forwarded to the other station as a parcel, and on its attachment to the instrument there, the staffs may be passed from the magazine to the instrument.

Victorian Railways now have electric staff working in use on 311 sections covering 2,160 miles, where it has a fine record for the reliable and safe operation of single lines.

BRAZILIAN RAILWAYS EXPANSION PLANS.—According to agency reports, details of a plan for re-equipping and expanding Brazilian railways, calling for an expenditure of more than 20,000 million cruzeiros, have been presented by Sr. Castillos, Director of the Brazilian Railway Department, to the Brazil-U.S. Joint Technical Mission. The programme would include allocation of 1,195,000 cruzeiros for the purchase of locomotives, 4,243,200,000 for rolling stock, 437,800,000 for depots, 2,382,100,000 for realignment works, 1,715,000,000 for track, 3,149,572,000 for electrification, and about 865,000,000 for other improvements. The Leopoldina Railway would obtain 18 new locomotives, 1,311 additional rolling stock, 840 km. of new rails, electrification of 78 km. and realignment of 482 km. The Santos-Jundiai would acquire 15 locomotives, 865 freight wagons and passenger wagons, and additional improvements. The needs of the Sorocabana Railway were estimated as 94 passenger coaches, 842 freight wagons, 841 km. of realignments, 900 km. of rails and 400 km. needing electrification. The Paulista Railway was listed as needing 24 locomotives, 1,200 coaches, and 480 km. of rails, and the Mojiana Railway 53 locomotives, 801 coaches and 690 km. of rails. For the Central Railway, the plan envisages 285 broad-gauge coaches, 1,750 new freight wagons and reconstruction of 1,700, and 201 narrow-gauge coaches, 630 new freight wagons and 500 freight wagons to be rebuilt. The plan will emphasise electrification of Brazilian railways.

AWARDS FOR WESTERN REGION STATION GARDENS.—Winners of the highest awards in this year's British Railways, Western Region, station gardens competition are: Theale, London Division; Yatton, Bristol Division; Lustleigh, Exeter Division; Leckhampton, Gloucester Division; Peterson, Cardiff Division; Pembrey & Burry Port, Swansea Division; Moreton-in-Marsh, Worcester Division; Aynho, Birmingham Division; Gresford, Chester Division; Llandinam, Oswestry District. Prizes were won by 209 of the 360 stations which entered, and in judging the entries, attention was paid to the special circumstances at each station, such as situation, soil and climate. No prize was awarded, however deserving the garden, unless the station premises had been kept clean and tidy and the work performed satisfactorily.

RAILWAY BENEVOLENT INSTITUTION.—At its meeting on December 15 the board of the Railway Benevolent Institution granted annuities to seven widows and 30 members amounting to £504 12s. per annum, and authorised 40 grants amounting to £472 10s. from the special benevolent fund in cases of immediate necessity. Grants made from the casualty fund during November amounted to £528 4s.

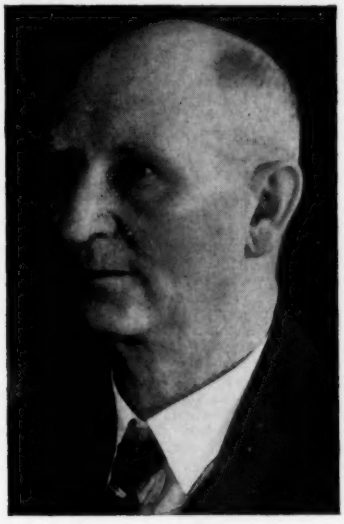
DERBY RAILWAY WORKS BAND.—The Derby Railway Works Band has entered for the first time for the annual Midland Area Brass Band Championships, to be held in the Albert Hall, Nottingham, on February 5, 1949. The band, which will be conducted by Mr. B. I. Davies, will compete against sixteen rivals for the fourth section championship. If it succeeds in winning either the first or second prize in its class it will be eligible to enter for the *Daily Herald* National Brass Band Championships of Great Britain, which are held later in the year.

RAILWAY NEWS SECTION

PERSONAL

The Prince Regent of Belgium has conferred on Sir Cyril Hurcomb, Chairman of the British Transport Commission, the honour of appointment as Grand Officer of the Order of the Crown. Sir Cyril Hurcomb was Director-General of the Ministry of War Transport during the recent war, and was closely associated with Belgian shipping. The decoration was presented last week by the Belgian Ambassador.

Mr. A. G. Denniss, M.Inst.T., Chief Traffic Manager, New South Wales Government Railways, who has retired, entered the Department of Railways as a temporary probationer in 1900, and, after occupying various positions, was appointed Indoor Assistant to the Chief Traffic Manager & Metropolitan Area Commissioner in 1930. Early in 1932 Mr. Denniss was appointed Transport Commissioner, Railway Transportation Branch, and later in that year, when there was an administrative reorganisation, his title was altered to that of Chief Traffic Manager.



Mr. A. G. Denniss

Chief Traffic Manager, New South Wales Government Railways, 1932-48

It is announced by the Crown Agents for the Colonies that Mr. A. Campbell, Chief Mechanical Engineer in the Crown Agents' Office, will sail from Liverpool on December 30 to study conditions on the railways in Nigeria, Gold Coast and Sierra Leone. Mr. Campbell is expected to spend about three weeks in Nigeria, a week in the Gold Coast and a few days in Sierra Leone, although the duration of his stay in each will depend on local travel arrangements.

The board of British Insulated Callender's Construction Co. Ltd. (the formation of which as a wholly-owned subsidiary of British Insulated Callender's Cables Limited is referred to elsewhere in this issue) will consist of Mr. P. V. Hunter (Chairman), Sir Johnstone Wright (Deputy-Chairman), and Messrs. H. F. Akehurst, C. S. Bell, W. C. Handley, W. G. Hendrey and H. J. Stone; in addition, the following will be Executive Directors: Messrs. C. O. Boyse (General Manager), O. J. Crompton (Manager, Traction Contracts), C. H. Frankland (Manager, Cable & Overhead Line Contracts), F. de B. Hart and F. B. Kitchin (Joint Managers, Developments & Special Projects). Mr. W. E. Tipton is to be Secretary-Accountant.

Mr. David John Howse, M.Inst.T., who has been appointed Chief Traffic Manager, New South Wales Government Railways, joined the Department of Railways in 1913 as a temporary junior porter, and after twenty years of railway experience he was appointed General Passenger & Freight Agent. Between 1941 and 1945 he was released from that position for service with the Commonwealth Government as Director of Rail Transport. Early in 1946 Mr. Howse was selected to assist in reorganising the Tasmanian Railway Service, and he was occupied with that task until late in 1947, when he returned to his position of General Passenger & Freight Agent.

Mr. D. J. Howse

Appointed Chief Traffic Manager, New South Wales Government Railways

Lord Justice Babington is to be the first Chairman of the Transport Tribunal which is to be set up under the Transport Act (Northern Ireland), 1948, to deal with fares, etc. He will relinquish his seat on the bench as Lord Justice of Appeal to take up the post.

Railway Executive Appointments

The following appointments are announced by the Railway Executive:—

Mr. B. M. Strouts, Assistant Commercial Superintendent (General), Passenger, Liverpool Street, to be Rates, Fares & Development Assistant, Passenger Commercial Section, Railway Executive Headquarters.

Mr. D. F. Gowen, Salaried Staff Assistant to Chief Officer for Staff & Establishment, Railway Executive Headquarters, to be Staff Officer (Salaried Staff).

Mr. C. H. Brazier, Wages Staff Assistant to Chief Officer for Staff & Establishment, Railway Executive Headquarters, to be Staff Officer (Operating Staff).

Mr. R. W. Bailey, Technical, Workshop & Maintenance Staff Assistant to Chief Officer for Staff & Establishment, Railway Executive Headquarters, to be Staff Officer (Technical & Maintenance Staff).

Mr. S. P. Smith, O.B.E., A.M.I.Mech.E., M.I.Mar.E, who, as recorded in our December 17 issue, has been appointed Chief Works Officer to the Hotels Executive of the British Transport Commission, was educated at St. Dunstan's College, Catford, and served an apprenticeship with the General Steam Navigation Company. He saw sea service in all types of steam and motor vessel from 1922-30, obtaining an extra First Class Board of Trade Certificate with Diesel Endorsement. From 1930-41 Mr. Smith was Principal Assistant to Chief Engineer, L.M.S.R. Hotel Services. From 1941-46 he served in the Royal Navy as Engineer Officer in destroyers and destroyer repair ship; he saw service with the Atlantic convoys, in the Mediterranean and with the Eastern Fleet. For his war service he was made an O.B.E. (Military Division). On demobilisation in 1946 he was appointed Chief Engineer to the L.M.S.R. Hotel Services.

Mr. S. P. Smith

Appointed Chief Works Officer to the Hotels Executive

We regret to record the death on December 11 of Mr. Samuel Gledhill, a Director of Kitchen & Wade Limited.

Central Transport Consultative Committee

The Minister of Transport has appointed the Central Transport Consultative Committee for Great Britain. As previously announced, the Chairman is Major Egbert Cadbury. The other members are:

Mr. W. Beard, Mr. Neil S. Beaton, Mr. William Blackwell, Alderman Thomas Bridgland, Mr. M. A. Cameron, Councillor J. P. Collins, Lt.-Colonel H. Edmund Davies, K.C., Sir Luke Fawcett, Mr. A. H. S. Hinchliffe, Mr. David Lowe, Mr. A. G. Marsden, Sir Robert Pattinson, Sir John Carew Pole, Mr. C. E. Prater, The Hon. W. L. Runciman, Lord Rusholme, Mr. R. H. E. Thomas, Councillor James Welsh, Mr. A. G. Wright.

The Secretary of the committee is Mr. G. Cole Deacon, and its offices will be at 22, Palace Chambers, London, S.W.1.

Assistant Chief Regional Officer, North Eastern Region

The Railway Executive, with the approval of the British Transport Commission, has appointed Mr. B. X. Jessop, Assistant Goods Manager, North Eastern Region, to be Assistant Chief Regional Officer, North Eastern Region, York.

We regret to record the death, at the age of 86, of Mr. Alfred Wiseman, founder, and Chairman & Managing Director, of Alfred Wiseman & Co. Ltd.

Institution of Locomotive Engineers

Nominations made by the Council of the Institution of Locomotive Engineers to fill vacancies occurring at the end of the present session (May 31, 1949), which will be put before a general meeting on January 19, are: President: Mr. W. Cyril Williams; Vice-Presidents: Mr. R. C. Bond and Mr. C. M. Cock; Members of Council: Messrs. R. Abuthnott, A. Campbell, E. S. Cox, I. C. Forsyth, W. G. Hornett, L. J. Le Clair, and J. H. P. Lloyd.

Mr. F. S. Veltom, Irish Traffic Manager, British Railways (Western Region), recently celebrated his silver wedding, and the staff of the Irish District, Western Region, took the opportunity of presenting him and Mrs. Veltom with a silver tea service. The presentation was made by Mr. W. G. Wakely, Chief Clerk, who said that every member of the Western Region staff in Ireland had subscribed to the testimonial, which demonstrated the respect in which Mr. Veltom was held. He further said that when the casual dockers employed by the organisation at Waterford had heard of the proposal they had asked to be permitted to add their contribution. In accepting the gift, Mr. Veltom said he deeply felt the honour shown to Mrs. Veltom and himself. He was particularly touched by the thoughtfulness of the casual dockers in wishing to be associated with the presentation to him.

Mr. C. J. Lamb, B.Sc., A.M.I.Mech.E., who, as recorded in our November 19 issue, has been appointed District Motive Power Superintendent, Edge Hill (Liverpool), London Midland Region, British Railways, has hitherto been District Locomotive Superintendent, Burntisland, Scottish Region. He was educated at Aberdeen Grammar School, Glasgow University and the Royal Technical College, Glasgow. He joined the L.N.E.R. in 1923 and served an apprenticeship at Inverurie Works and Cowlairs Works, Glasgow. In 1929 he became Running Shed Foreman at Ferryhill, Aberdeen, and he took similar appointments at Hawick in 1932 and Hartlepool in 1934. Subsequently he had special training in operating and commercial work, and was appointed Stationmaster at Alnmouth in 1937. Later in the same year he was appointed Acting Assistant District Locomotive Superintendent, York, and in the next year was made Head of General Section, Locomotive Running Superintendent's Office, York. In 1939 Mr. Lamb was appointed Assistant District Locomotive Superintendent, Sunderland, and later in the same year to a similar post at Darlington. He became Technical Assistant to the Locomotive Running Superintendent, York, in 1942, and was made Acting Assistant Locomotive Running Superintendent at Edinburgh in 1943. He was appointed District Locomotive Superintendent, Burntisland, in 1945.

Mr. C. J. Lamb

Appointed District Motive Power Superintendent, Edge Hill, L.M. Region, British Railways

Sir Eustace Missenden's Christmas and New Year Message

The following Christmas and New Year message has been addressed to the British Railways staff by Sir Eustace Missenden, Chairman of the Railway Executive:—

In addressing to all the 658,000 members of the staff of British Railways sincere seasonal greetings for Christmas and all good wishes for the New Year, my fellow members of the Railway Executive, the Chief Regional Officers and I are mindful of the fact that New Year's Day, 1949, has for all of us a special significance. It marks our entry into the second year of the unified management and operation of our railways, and we can now look back on the first complete year's working of what, twelve months ago, was a new and untried regime. Although I am sure that we are all looking forward into the future rather than reflecting on the past, the occasion nevertheless merits some consideration of the progress which we have already made, and which we hope greatly to extend in the future, towards making "British Railways" something more than a name.

Twelve Months' Experience

The stage in economic progress of the country, and the continued rise in the cost of everything we have to pay for, the fall in public spending-power, and the shortages of essential materials—notably steel—have hampered our efforts during the past twelve months. Traffics have fallen, while we have not been able to go nearly as fast as we should like with the replacement of worn-out carriages, nor with schemes for improving both public and staff amenities. While carrying out the domestic reorganisation which is essential to the economic operation of the railways in future, our object has, therefore, been to improve our services as far as we possibly can in face of the limiting factors. Despite fewer coaches, we have contrived to provide the public with the best summer and winter train services since before the war; we have re-introduced many popular travel facilities, and our freight services are being progressively accelerated and improved.

Still Better Service

Within the British Railways system, many changes of organisation and method are taking place, which will ultimately provide better services. As railwaymen, we are all proud of our old loyalties and of the traditions which we have inherited; the Railway Executive is not insensible either to loyalty or to tradition, but for every job there is a best way of doing it, and for British Railways and their public no way but the best is good enough. We shall not adopt any standard method, nor any change in organisation, without being assured that it is most suitable to the particular requirement in view; at all practicable stages we shall seek to take you into our confidence as to what we are doing and why we are doing it. Meanwhile, my colleagues and I wish to pay tribute to the responsible and co-operative spirit with which these necessary changes have been received. You may know that during the past year we have sat down with the officers of the trade unions and exchanged information and ideas frankly and cordially. Speaking for the Executive, I can say that we have found these discussions very useful and we look forward to continuing and developing them in 1949.

With the British Transport Commission and with the other Executives involved, we are at work on many schemes of transport co-ordination in which the railway will play its full part. These schemes are bound to bring about changes, including the cessation of some railway activities which have become uneconomical and which may more efficiently be performed by other means of transport. Such developments should react to the advantage of British Railways by giving us a larger share of the traffic for which we are best equipped to deal. The great railway heritage which has been built up by over a century of enterprise and endeavour must never be cast away; rather do I foresee that, when co-ordination is fully effective British Railways will stand more firmly than ever as the greatest single arm of the national transport service.

Into the Second Year

As we enter the second year of the unified British Railways, let us re-affirm the objectives which I am sure we all have at heart: namely, by zealous service and constant courtesy to enhance the reputation of our calling in the eyes of the public whom we serve, and to spare no effort to make "British Railways" synonymous with the highest standards of technical craftsmanship and of efficiency and safety in operation. For it is by its standards of service, and not by self-advertisement, that our railways will be judged. The Railway Executive and the Chief Regional Officers thank you for all your hard work and your help during the past twelve months. You have achieved much. This is only the beginning. Let us make 1949 a year of solid accomplishment and successful enterprise by British Railways.

A Merry Christmas and a Happy New Year to you all

London Midland Region Staff Changes

Mr. W. J. Sadler, Assistant Divisional Signal & Telecommunications Engineer, Crewe, to be Signalling Assistant, Signal & Telecommunications Engineer's Department, Euston.

Mr. F. W. Young, Assistant (Development), Signal & Telecommunications Engineer's Department, Euston, succeeding Mr. Sadler as Divisional Assistant (Signals), Signal & Telecommunications Engineer's Department, Crewe.

Mr. J. O. Eccles, Assistant (Staff), Motive Power, Euston, to be Staff Assistant to Motive Power Superintendent, Euston.

Mr. D. L. Pride, Assistant District Operating Superintendent, Nottingham, to be District Operating Superintendent, Birmingham (Western).

Mr. R. J. Powell, Assistant District Traffic Superintendent, Carlisle, to be District Operating Superintendent, Barrow-in-Furness.

Mr. A. R. Ewer, District Motive Power Superintendent, Llandudno Junction, to be District Motive Power Superintendent, Trafford Park.

Mr. G. C. Parslew, Assistant Office of Divisional Motive Power Superintendent, Manchester, to be District Motive Power Superintendent, Llandudno Junction.

Mr. C. R. Bennett, Assistant to District Operating Superintendent, Liverpool (Lime Street), to be Assistant District Operating Superintendent, Liverpool (Cheshire Lines).

Education of Railway Staff*

Organisation of British Railways Commercial School at Faverdale reviewed by Mr. H. F. Sanderson

The educational facilities provided by British Railways for their staff can be classified under three headings: Evening classes; Non-residential schools; Residential schools.

Evening classes in such subjects as station accounts, block signalling and permanent way work, are held in London and the main provincial towns of all Regions for salaried and wages grade staff. The instructors are railway officials, expert in their own particular subject, and correspondence courses also are run in these vocational subjects for those unable to attend the classes. Further evening classes are held in the more advanced subjects, such as railway operating, economics, law, and geography, at various universities and commercial colleges. Attendance is voluntary and the staff attend in their own time, but the fees are paid wholly, or mostly, by the railway.

There is a limited number of non-residential schools, at which vocational training is given by a small permanent instructional staff. These schools are mainly for the wages grades who attend in railway time. A recent example is in the Scottish Region at Glasgow, where courses in goods terminal work were inaugurated last month and the need for these courses is obvious to all who have studied the handling of small consignments at our large terminal goods stations.

The residential schools of British Railways consist of the ex-L.N.E.R. primary schools at Hadley Wood, Scarborough, and Edinburgh, where courses are held for the younger clerical staff in station accounts and telecommunications; there are also the ex-L.M.S.R. School of Transport at Derby, the Southern Region Staff Training College at Woking and the two all-line schools at Darlington, namely, Grantly, the operating school, and Faverdale, the commercial school.

Instructional Staff

The selection of the instructional staff for railway schools presents many problems, the solution of which is determined largely by the type of course and the number of students. The requirements are knowledge of the subject, ability to teach, and administrative skill. If the instruction is given by a small permanent staff, continuity is more easily assured and duplication is avoided more readily; this practice is followed generally at railway schools, although at Woking, where courses are held for the staff of many different departments, most of the instruction is given by visiting lecturers.

I may say that in the matter of the permanent staff, the emphasis in the case of the L.N.E.R. was definitely on the word small, which, however, is particularly appropriate to the nature of our courses at Faverdale. We are dispensing higher education in railway commercial work, and success depends very largely on personality—the value of the human approach to the customers of the railway is emphasised, and I am sure this desirable characteristic can be encouraged by practical demonstration in the proper handling of the student whilst at the school. We have, therefore, a principal and one assistant to undertake the whole of the instruction and the administrative work. It is an exacting task, but the more the principal sees of the students, the better is he able to assess their ability.

Types of Course at Faverdale

At Faverdale three types of course are run, namely, senior commercial, commercial, and R.S.R's, which is the modern name for railway canvassers. The syllabus for the three types of course is very much the same, although there are slight differences in method of approach and emphasis; certain subjects are omitted from the R.S.R.'s course, as it lasts only 3½ weeks, instead of the 4½ weeks of the other types of course. The men for the senior course include assistant district officers, headquarters and district office section chiefs, stationmasters and goods agents; the average age is about 40. The men for the commercial course are the promising young men of about 30 years of age, including traffic apprentices, many of whom are rather younger. The R.S.R's are more elderly and their average age is about 45, but headquarters and district office staff on development and canvassing work also attend these courses with the R.S.R's.

The careful selection of men for courses of the higher education type is a vital requirement. There are obvious difficulties in releasing for lengthy periods individuals holding responsible posts, but any tendency to relate selection to ease of release must be avoided if the maximum benefit is to be realised. This tendency disappears as the value of higher education for adults becomes more widely appreciated and I am confident that in this respect railway management has advanced further than most industrial concerns.

The objects of the course are explained to the students as follows:—To broaden their outlook; To widen their knowledge of the organisation of the railway and the special place of the commercial department in that organisation; To give them a better appreciation of public and traders' requirements; To promote orderly thinking, with special reference to railway commercial problems. It is not the intention to teach them the details of their daily work—it is more a case of developing the enquiring turn of mind and making them think out for themselves how best to deal with the vast number of commercial problems which present themselves.

A unique feature of Faverdale is there is no text book. We send to each student four weeks before the start of the course, a set of documents now totalling about 50; these documents provide the general background to the subjects in the syllabus and their superiority over a text book is that they are revised and brought up to date regularly, whilst new subjects are introduced as occasion demands.

The provision of really first-class amenities is an essential requirement and this involves good feeding, good sleeping, pleasant surroundings and adequate recreational facilities. The students take an active part in running the school and each one is given a duty. The appointments made include a vice president of the week, who is in charge in the absence of the principal and his assistant; travel agents who are responsible for the travel arrangements; a librarian, to look after the fiction and technical library; lecture-room assistants, who display the maps and diagrams; and the entertainment committee, consisting of one student from each Region, which is responsible for organising entertainment, but only to the extent that the students themselves wish it to be organised. Discipline must be maintained, but the only regulations imposed are those essential in the common interest.

Lecture periods of 1¼ to 1½ hr. best meet our requirements, but to maintain interest the lectures must be in the form of lesson-discussions with suitable relief in the way of anecdotes. Regular inspection of verbatim notes is necessary to see whether the lecture has been understood and whether there is scope for improving the method of putting it across. Inspection is an exacting task, but well worth the effort.

Visits to the works of industrial firms and to railway goods and passenger stations are an important feature of the courses. An essential preliminary to these visits is a detailed explanation of the objects of the visit and of the various processes to be seen; similarly, provision is made for discussion after the visit, to ensure that the lessons have been learned.

Included in the syllabus are exercises on such matters as demurrage arguments, rates and fares problems, traffic regulation, and station amenities. The exercises are based on actual practical problems requiring solution by railway commercial officers. The students are divided into syndicates for the purpose of these exercises, which are popular and of great value; they give scope for the interchange of ideas and practice in resolving different points of view.

Two or three debates are held at each course, and there is no lack of controversial subjects at the present stage in transport affairs. Many railwaymen, even those with long service on canvassing work, have had little experience of speaking in public, and many students have gained confidence from taking part in these debates, whilst all derive some benefit from the exchange of ideas.

Value of Examinations

One day at the end of the course is devoted to a written examination, which, naturally, is the least popular item in the syllabus. There is much to be said for and against examinations and the only point on which there is general agreement is that no one likes them, including the examiners. They provide an incentive to greater effort and an opportunity for distinction, but, of course, they do place a great premium on memory. However, the efficiency of many of us would be improved by a better memory, which is a quality entitled to reward, although obviously examination questions should be so designed as to require something more than memory to achieve success. The essential point is that neither too much, nor too little importance should be attached to the results, and I am convinced that taken together with performance generally throughout the course, they give a reasonably reliable basis of assessment of ability.

A few days before the end of the course, each student prepares a report under specific headings dealing with both the domestic and instructional sides. At the last session, these reports are discussed,

* Abstract of a paper, "Railway Education," read before the Railway Students' Association, London School of Economics & Political Science, on December 14, by Mr. H. F. Sanderson, Principal of British Railways Commercial School at Faverdale Hall

and many useful suggestions have been adopted for the benefit of later courses.

About 500 students have completed courses at Faverdale, and I am assured that our objects are being achieved. It would be premature on my part to forecast the future, because the whole question of education in transport is in the hands of Mr. John Benstead, Member of the British Transport Commission, and his report is awaited with the greatest interest.

International Freight Train Timetable Conference

The International Freight Train Timetable Conference was held at Rome from November 22-27. All European railway administrations owning standard-gauge lines were represented, except the Hellenic State Railways. Full agreement was reached on notable accelerations to be introduced on all routes from a date, not yet fixed, next spring, when the improved final timetables are to be discussed at an international conference.

In the general co-ordination of international goods services the Swiss administrations concerned (the Federal Railways and the Loetschberg Railway) wished to reduce the competition for the international transit traffic through Switzerland which is being felt increasingly because of measures taken by Switzerland's neighbours and maritime shipping. The Swiss delegates secured for all their routes of transit full parity with all competing foreign routes so far as the times of transport are concerned.

Because of the central position of the Swiss railways in Europe the main Swiss transit traffics have been those between Italy and the United Kingdom (vegetables and fruit traffic) by way of French and Belgium Channel ports, between Jugoslavia and Hungary on the one hand, and western Europe on the other, and between Italy and Scandinavia, the Netherlands, and Germany. It has already been possible to accelerate considerably the through goods traffic on some of the German lines, notably between Czechoslovakia and Switzerland *via* Nuremberg, and Scandinavia, and Switzerland *via* Padborg, the Danish frontier station. For traffic between Switzerland and the Netherlands use will be made of the German lines to the east of the Rhine as from May, 1949.

"Friendship" Trains in France

The French "Thank You" train, loaded with gifts in token of gratitude for the "Friendship" train, which arrived in Le Havre last December laden with food collected in the United States for distribution in France, was on show at the Gare d'Orsay in Paris before leaving for America. It is made up of 49 wagons of the type, "8 horses, 40 men," used in the first world war. One wagon will go to each American state and the forty-ninth to Hawaii.

The French gifts include 49 Sèvres porcelain vases presented by the French President, 49 trees and bushes from various parts of France, and 49 sets of medals struck by the French mint. Numerous dolls, dressed in typical provincial costumes, were collected as the gifts of French children at the suggestion of Mrs Eleanor Roosevelt. Among the other gifts are many products and instruments of medical, surgical, and biological interest.

Another interesting train, known as the Interallied "Friendship" train, has been on exhibition recently in the Gare St. Lazare, Paris. The train was made up by Belgian railwaymen to organise aid to the orphans of men who lost their lives in the railway services while resisting the Nazis. After a visit to Luxembourg, the train began a tour of France to collect more funds and distribute gift parcels to 5,000 orphans. In appreciation of the Belgian generosity, the French have added another coach to the train. All funds collected in France will be reserved for the French orphans.

Three coaches are arranged as an exhibition of scenes in the war, with reproductions of night life in the "maquis."

Report of the South African Coal Commission

The report of the Coal Commission appointed in 1946 has now been issued. Brigadier J. D. White, until September, 1945, Deputy General Manager of Railways, was appointed Chairman of the Commission, and, because of the importance of railway transport facilities to the coal industry, the Commission included in its report a chapter on the railway transport of coal.

Regarding the future, the railways gave the following information showing the number of additional engines and wagons on order, with the approximate dates when the equipment was expected to be placed in service:—

Item	1947*	1948	1949	Subsequent to 1949	Total
Main-line engines	50	50	—	—	100
Branch-line engines	48	90	60	25	223
Electric units	11	17	—	40	68
Shunting engines	2	4	6	100	112
Bogie wagons	1,903	4,661	12,594	4,409	23,567
Short wagons	610	1,005	735	450	2,800

* The figures for 1947 reflect stock actually placed in service during that year

The report states that, although fully appreciating the magnitude of the effort made by the railways during the past few years in dealing with a variety of traffic problems, and grateful for what has been accomplished on its behalf, the coal industry is still apprehensive about the adequacy of future planning by the Railway Administration to handle the large predicted increase in the demand for coal which faces the industry in the next ten years.

In addition to the engines and rolling stock now on order, the Administration has under consideration a scheme for improvements to the main line between Witbank and Komatipoort, involving an expenditure of about £2,500,000. These improvements are being undertaken for the purpose largely of coping with increased shipment coal traffic between the Transvaal and Lourenço Marques. Komatipoort is the frontier station between the Transvaal and Mozambique. Witbank is the junction of an important chord line running eastwards from Pretoria.

Information was obtained also regarding the capacity of the Natal main line to handle any increase in traffic, and the Commission was assured that this would be catered for, should the necessity arise, and that the port loading facilities at Durban were capable of handling considerably more coal than hitherto, even during peak periods. A scheme of reclamation and improvements is now in progress at Lourenço Marques for the provision of additional dock facilities which will completely modernise the existing coal loading facilities and add substantially to the tonnage handling capacity of the port.

With regard to rates, the Administration pointed out that it costs just as much to transport low-grade coal as high-grade coal, and that the cost of transporting this commodity is not affected by its pithead price or its value at the place where it is consumed. It would be inherently unsound and in conflict with the fundamental principle governing all railway tariffs to adopt the suggestions made to differentiate in the rates for conveying goods of the same description according to variations in their grade and quality.

The Commission, after carefully analysing the evidence submitted by the South African Railways & Harbours Administration, was of opinion that, whereas the coal industry had undoubtedly suffered in the past as a result of insufficient and intermittent wagon supplies, the steps taken to overcome these difficulties indicated clearly that the Railway Administration was fully alive to the requirements of this important industry. The Commission was also of the opinion that the improvements in line facilities between Witbank and Komatipoort, a distance of approximately 200 miles, should be given high priority on any railway extension programme.

OVERHEAD CRANES FOR GATESHEAD.—Two new 4-ton electric overhead travelling cranes are to be installed at the Gateshead works of the North Eastern Region of British Railways to replace two which have been in service for 43 years. The new cranes will be supplied and erected by the Wharton Crane & Hoist Co. Ltd.

INCREASED EFFICIENCY OF U.S. RAILWAYS.—A fact finding board appointed by President Truman recommended recently that the U.S. railways should increase the pay of "non-operating" workers by seven cents an hour, that the increase should be retrospective to October 1, and that, at the beginning of September, 1949, the work should be reduced from 48 hr. to 40 hr. without reduction in the "take home" pay. The board's recommendations are not binding on either railways or unions, but usually they form a basis for actual settlements. The number of railway employees has decreased from 2,000,000 in 1920 to 1,400,000 at present.

EXPANSION OF I.C.I. FACTORIES.—Lord McGowan, Chairman of Imperial Chemical Industries, stated on November 20 that expansions estimated to cost £13,000,000 would be made to the factories in the alkali division of the company, forming part of an expansion programme involving an expenditure of £80,000,000. The scheme should be complete by the end of 1953. Lord McGowan added that he made no secret of his apprehension over the programme for nationalising iron and steel. State ownership of an industry would not cause it to become more efficient and no Government-controlled organisation would have taken the risks that Mond and Brunner had to accept when they began their business.

Snow Clearance on Railways

Mr. W. K. Wallace at the British Glaciological Society

Mr. W. K. Wallace, formerly Chief Civil Engineer of the L.M.S.R., read a paper on November 18, before the British Glaciological Society, entitled "Snow Clearance on Railways." The meeting was held in the rooms of the Royal Geographical Society, Kensington, with Mr. H. W. Ward in the Chair. Among those present were Mr. A. Moss, Signal & Telecommunications Engineer, Eastern Region, President of the Institution of Railway Signal Engineers, and Mr. A. F. Wigram, Assistant Signal & Telecommunications Engineer, Western Region.

The paper gave details of the methods used to prevent snow drifting on to lines and over cuttings, especially in Scotland, where conditions rendered the staffs more experienced, as a rule, than those engaged in the south of Great Britain, in dealing with this problem. Various methods used in clearing snowfalls and drifts were outlined, and descriptions given of the different types and arrangements of ploughs. A number of lantern slides illustrated scenes of exceptional winter weather and the ploughs and apparatus used to cope with it, including the experiments made in 1947 with aircraft jet engines, which had had only a very limited success.

Snow Plough Equipment

It was explained that standard designs of snow-plough equipment were being considered. Many suggestions had been made for alternative ways of dealing with snow, but some were impracticable for use on a railway, as in clearing the snow they would cause damage to the tracks and equipment. The effects of winter conditions on signal and telecommunication apparatus were dealt with, as well as the action of severe frost in tunnels and on the running of third-rail electric trains.

Speakers who joined in the discussion included Air Commodore Lucking, Messrs. A. Moss, Bonacina, Seligman, Sterne, Robinson, Whiten, Wilson, Reddington, Treweeks and Dr. Roberts. The question of the correct height and position of snow fences was discussed, and the use of rotary snow ploughs formed the subject of much comment.

Economic Considerations

The lecturer emphasised the economic aspect of that and related topics. Large capital investment would be necessary to provide rotary ploughs in sufficient numbers to cover the whole country, and the occasions on which they would be required were comparatively few. These ploughs were not efficient in dealing with wet snow, which so often was encountered in British winters. In certain countries where there were heavy falls of dry snow, rotary snow ploughs acted very well.

Mr. Moss pointed out the difficulties felt by the signal engineer with even light falls of snow and the trouble experienced in keeping points clear and operating connections free. He also referred to the attempts to apply heaters of various types to points, with the object of keeping them working in all weathers.

Mr. Wallace referred to experiments made at Buxton with electric heating, which were successful technically, but not economically, and to the oil circulation system being applied by London Transport, the costs of which he had no information about.

Mr. Bonacina spoke of the effects of the great blizzard of 1891, when a Paddington-Plymouth express was completely marooned at Brent, on Dartmoor, for a week.

A vote of thanks to Mr. Wallace, moved by Mr. H. W. Ward, was carried amidst applause.

Parliamentary Notes

Railway Passenger Services and Fares

Mr. William Shepherd (Bucklow—C.), on the motion for the adjournment of the House of Commons on December 16, raised the issue of railway fares. He said that almost everybody, except the Minister of Transport and the Parliamentary Secretary, was dissatisfied with the situation: they alone were happy that fares should be at their present level, and they alone were trying to convince the majority of people that there had been a rise of only 55 per cent. since 1938.

It was surely remarkable that, before we owned the railways ourselves, the Minister could have been asked why the 2.30 was ten minutes late; but that, since that price'ess possession had been nationalised, they could not ask questions of any moment about railways. Two things, however, they did know: that the service to the public had not improved, and that the bureaucratic methods of the Civil Service were being instituted.

It was stated by some authorities that the prospective loss for the operating year 1948 would be in the neighbourhood of about £20 million. The reason was a sensational drop in passenger traffic. That had occurred in the early thirties, but then the railway companies had taken reasonable and energetic steps to restore the volume of traffic. Today, the Socialist remedy was being applied, that was, to make the consumer pay more. The Railway Executive, apparently at the instigation of the Minister, was waiting for bus and coach fares to be raised so that the position should be remedied.

A short time ago the Chancellor of the Duchy of Lancaster (Dr. Hugh Dalton) had told the House that they ought to be grateful to the railways, particularly the nationalised railways, because fares were only 55 per cent. above 1938 and the average level of most commodities was much greater. That, of course, was untrue. The ratio of cheap fares to standard fares today was not a quarter what it had been. In 1938 a substantial amount of passenger traffic on the railways had taken place on preferential fares. The refusal of the Railway Executive properly to institute cheap facilities was ruining its business. The railways ought to be doing much more business than in 1938, because, for one thing, there was a great restriction on petrol. With holidays with pay, higher wages and full employment, it ought to be reasonable to expect traffic to be heavier, but it was decreasing.

There was no really serious shortage of locomotives. The railways said there were 5,000 carriages short, but that was a lot of nonsense, as could be confirmed at any depot like Crewe or Swindon. That was the kind of story with which, under the protection of a State monopoly, the Minister and the Railway Executive were apparently trying to bamboozle the public. In fact, they had locomotives and carriages available if properly used.

He suggested that the real answer was to get back to the "bad old methods" of private enterprise and encourage people to use the railways, by re-instituting conditions which existed before the war.

Squadron-Leader E. Kinghorn (Great Yarmouth—Lab.) said one heard from people constantly travelling on the main lines that the improvement in the catering facilities had been very great, especially since Lord Inman had taken over.

There had been a great deal of good work in places like Doncaster on new rolling stock. At the moment there was some fine passenger stock, but there were not enough locomotives; the leeway had not been caught up, but they were catching up, as anyone could see if he talked at Doncaster with the experts.

He wished there could be more certainty about the time of arrival in the great termini of London. The other day he himself had almost failed to arrive; he had travelled on the "Queen of Scots," and the engine had just reached the platform and then had gone wrong.

Before the war many of them had made full use of the cheap facilities available. The stations had been absolutely buzzing with activity on those Sundays. It might be too much to expect that to come back just now, because it might need rolling stock; but it seemed to him that the time had been reached when they could make more use of the railways than they were doing.

Mr. James Callaghan (Parliamentary Secretary, Ministry of Transport), in the course of his reply, said that the percentage of express passenger trains arriving on time or up to five minutes late in the four weeks ended October 4, 1947, had been 52·9 per cent. In the four weeks ended October 2, 1948, the percentage was 65·3. That showed a substantial improvement in the service to the public. As for other passenger trains, arriving on time or up to five minutes late, in the four weeks ended October 4, 1947, the percentage was 86·7. In the four weeks ended October 2 last, that had risen to 91·6 per cent.

If Mr. Shepherd would turn to Command Paper 7399, "Government Control of Railways," he would see that the actual total loss last year, including the fixed annual sum payable by the Government to the controlled undertaking—that was, rent—was nearly £60 million.

Mr. Shepherd: Does that include London Passenger Transport?

Mr. Callaghan replied that London did not make a lot of difference to that figure. He was not going to make any accurate forecast of what the financial situation would be at the end of this year, but the loss would not be anything like as big as last year. The statement by Mr. Shepherd that the Minister would some day announce an increased schedule of fares was either misleading or made in ignorance.

The Minister would not have power under the Transport Act to come to the House and announce an increase in railway fares. The British Transport Commission was charged with reviewing the fare schedules; having made its review, it might go to the Transport Tribunal, which would hold public hearings.

The Parliamentary Secretary gave some of the fare facilities introduced since January 1 last. Cheap day tickets had been considerably extended; day outings for parties with a minimum of eight adults extended to every day of the week by ordinary, relief or special trains, by

prior arrangement; day outings for juveniles up to 18 years of age with a minimum of eight juveniles extended to every day of the week; guaranteed day excursions with a minimum of 300 adults; advertised day excursions by ordinary, relief or special train at single fare for double journey; circular tours; half day and evening excursions by ordinary or special trains at less than single fare for double journey; and cheap facilities for sports clubs. On January 1 next, walking tour tickets would be introduced at single fare for double journey. Another facility would be introduced for rambling and cycling organisations, which would be able to get touring tickets at one-third less than the point-to-point single fare cost.

By the end of November something like three million passengers had been carried at excursion fares on 7,000 special trains during this year. The gross receipts were about £1 million in that field. In 1947 up to October 3 approximately 27 million persons travelled by cheap day tickets. Since January 1 that figure had increased from 27 to 59 million.

He had a number of illustrations of the important main-line fares which demonstrated just how the increase of 55 per cent. had been made up. On the route from London to Edinburgh (Waverley), the monthly return fare in 1939 had been 69s. 4d.; today it was 107s. 6d.; and to Glasgow, 70s. 4d. in 1939, today 109s. London to Exeter, 30s. 2d. in 1939, was today 46s. 9d.; Southampton Central, 13s. 11d. in 1939, and 21s. 7d. in 1948. They were all 55 per cent. up. The fares being paid in 1948 were only about 10 per cent. above the 1928 level. There had been, of course, a substantial drop in the fares between 1928 and 1938 owing to the fierce road competition, but they all knew the results of road competition during the 1930's, and it was partially to ensure that the national transport system as a whole was not rendered bankrupt now that nationalisation had been introduced.

If Mr. Shepherd's point was that railway fares ought to be decreased, let him say straight away that the Railway Executive shared that desire to the full. Its basis of procedure was to reduce fares, if it could be reasonably certain of securing additional revenue from the reduced fares. The only limitation at present was the shortage of carriages. As and when they could get hold of rolling stock, the Executive would extend these facilities. He congratulated the Executive on what it had managed to do during the last twelve months in the face of great difficulty. What he had been interested to see was the way the Chief Regional Officers in the provinces and in Scotland had had devolved on them a considerable measure of responsibility in the question of cheap fares. The Executive was going about its job in a businesslike way. It was going after new business.

Railways & Canal Commission (Abolition) Bill

The Attorney-General (Sir Hartley Shawcross), in the course of moving the second reading of the Railway & Canal Commission (Abolition) Bill in the House of Commons on December 7, paid tribute to Lord Maenan (the last remaining appointed Commissioner), who, as Sir Francis Kyffin Taylor, was known to all members of the Bar, and particularly to Sir David Maxwell Fyfe and himself and other members of the Northern Circuit, as the presiding Judge of the Liverpool Court of Passage. He doubted whether there had ever been a greater judge, or one who had been held in higher esteem and greater affection. He was proud to have the opportunity of paying tribute to one who, at the remarkable age of 94, still possessed qualities of mind and heart which must be envied by most other holders of judicial office much younger in years than was Lord Maenan. An amendment would be moved in committee for some measure of compensation for the loss of office by one who, despite a lifetime of public service, would not otherwise be entitled to a pension. He commended the bill to the House as one which would put to a formal end a tribunal which no longer served the useful and important purpose it once had done. He commended it to the House with regret to the extent that it also involved the removal from judicial office of so great and respected a figure.

Sir David Maxwell Fyfe (Liverpool, West Derby—C.) said there was no opposition to the Bill from the Conservative party. They realised that with the passing of the Transport Act, 1947, the main purposes of the Railway & Canal Commission had finally departed. He paid a tribute to the judges of the court who had dealt with highly technical subjects which touched very nearly the lives of the people in many respects. They had dealt with the ensurement of good railway services in the difficult days when the railways of this country were being built up. He also paid a tribute to Lord Maenan, the last of the Commissioners. Some of them, he said, owed more to him than they could ever express.

Mr. Scholefield Allen (Crewe—Lab.), as a member of the Northern Circuit, also paid tribute to Lord Maenan.

The Bill was read a second time and committed to a committee of the whole House.

The financial resolution in connection with the Bill was agreed to in committee.

Questions in Parliament

Euston Station Strike

Lt.-Commander J. A. Langford-Holt (Shrewsbury—C.) on December 13 asked the Minister of Labour whether he could make a further statement on the strike position at Euston Station.

Mr. George Isaacs (Minister of Labour): As reported in the press, the Railway Executive has issued a notice that, unless the staff on strike report for duty today, their services will be regarded as having terminated. The final position cannot be assessed today until all shifts have started.

Commander Langford-Holt: Will the Minister tell us whether there is any suspicion or indication of Communist influence in this strike, and what steps the Government is proposing to take to restore immediately and completely the public service which is being held up at this time?

Mr. Isaacs: At the moment the matter is being handled between the representatives of the union and the Railway Executive. I think it is only right that the House should be informed that the Railway Executive made it known that if the strikers would go back and if the man concerned, Rice, would accept the duty No. 59, it would be prepared to listen to any representations Rice might wish to make. The union regarded this as most reasonable. At the moment I understand that quite a number of men have returned to work, but until the evening shift reports for duty it is impossible to say. We hope their return to work will enable the arrears of goods to be cleared without imposing any further difficulties.

Mr. M. S. McCorquodale (Epsom—C.): Will the Minister take note that this is yet another serious unofficial strike in a nationalised industry?

Mr. Isaacs: Yes. We take note of that, but I would ask the House also to take note that a great number of the unofficial strikes have been outside the socialised industries.

Commander Langford-Holt: The Minister expressed the hope that a large resumption of work would take place today. In the absence of a large resumption, will he answer my question of what steps the Government proposes to take to restore the public service?

Mr. Isaacs: I can assure the House that I am in contact with my colleague the Minister of Transport with a view to ensuring that the public services shall not be impeded.

U.S. Engineers and Railway Extensions

Mr. F. J. Erroll (Altrincham & Sale—C.) on December 7 asked the Secretary of State for the Colonies if he would publish a list of the development schemes, including railway extensions, on which the U.S. geologists and geodetic engineers, now being recruited by his department, were to be employed.

Mr. A. Creech Jones stated in a written answer: Approval in principle has been given by the United States Economic Co-operation Administration to three proposals involving assistance from E.R.P. funds. These are:—

First, a proposal to employ 25 American geologists on a temporary basis to fill vacancies in the Colonial Geological Survey; secondly, a proposal to employ 24 to 30 American geodetic engineers to assist the Directorate of Colonial Surveys on ground control work in areas where air photography has been completed or is now in progress; thirdly, a proposal to employ, under the auspices of the East African High Commission, some 20 engineers and seven consultants to survey, from the engineering and economic viewpoint, proposed routes for a rail-link joining the Rhodesian and Tanganyikan railway systems, and possible routes between Broken Hill and the new port of Mikindani.

Further consideration is now being given by the United States authorities to the legal, financial and administrative implications of these proposals.

Railway Accidents

Mr. F. J. Erroll (Altrincham & Sale—C.) on December 8 asked the Minister of Transport what were his present powers and duties in regard to the prevention of, and investigation into, railway accidents.

Mr. James Callaghan (Parliamentary Secretary, Ministry of Transport) stated in a written answer: No passenger railway or any new work affecting a passenger line may be brought into public service without the Minister of Transport's approval, based on an inspection by one of the Inspecting Officers of Railways. Under the Railway Regulation Act, 1871, and the Railway Employment (Prevention of Accidents) Act, 1900, all accidents to trains on passenger railways and all those involving fatality or injury on railway premises are reported to my department. The Minister is empowered by these Acts to order an inquiry into any of the accidents so reported. Reports of such inquiries are published and include recommendations for future prevention where

necessary. Under the latter Act also, the Minister can make rules with the object of reducing or removing the dangers and risks incidental to railway service.

Railway Employees and Compensation

Squadron-Leader M. C. Hollis (Devizes—C.) on December 9 asked the Minister of Health whether he was aware that persons in receipt of compensation for loss of local government office who had accepted employment from railway companies before nationalisation lost their compensation under paragraph 14 of the Eighth Schedule to the Local Government Act, 1929, on the nationalisation of the railways; and whether he would introduce legislation to remedy that anomaly.

Mr. Aneurin Bevan (Minister of Health): The answer to the first part of the question is "Yes, Sir," and to the last part, "No."

Squadron-Leader Hollis: The Minister admits, then, the fact that, as a result of nationalisation, certain people lose the rights of compensation which they originally possessed? Is he, then, satisfied that that is a satisfactory state of affairs?

Mr. Bevan: It is not as a result of nationalisation. It is as a result of a very complicated code in which there is a number of anomalies.

Underground Railway Developments

Mr. A. M. Skeffington (Lewisham West—Lab.) on December 6 asked the Minister of Transport whether he had yet completed his surveys of South East London with a view to possible Underground railway developments.

Mr. Alfred Barnes: I expect to receive in due course a report from the British Transport Commission covering this matter.

Mr. Skeffington: Is the Minister aware that, without exception, the passenger facilities in this area are the worst in the Greater London area, and that, while the people of South East London are delighted to see tube extensions in the North, they think it is about time something was done for their convenience?

Mr. Barnes: Yes. That is the reason why the British Transport Commission has established a working party to look into this matter and to report to me shortly.

Railway Extensions in Africa

Mr. F. J. Erroll (Altrincham & Sale—C.) on December 7 asked the Secretary of State for the Colonies if he would publish a list of the principal railway extensions at present being undertaken, surveyed or contemplated by his department or Colonial Governments in Africa; and what were the approximate route mileages of those schemes and capital costs.

Mr. A. Creech Jones (Secretary of State for the Colonies), in a written answer, gave the following particulars:—

East and Central Africa: Engineering and economic surveys of the following alternative railway extensions are under consideration: Broken Hill—Mbeya—Dodomo—Arusha—Nairobi (approximately 1,250 miles); Broken Hill—Mbeya—Morogoro or Kilosa—Korogwe (approximately 1,000 miles). It is also proposed to conduct a quick reconnaissance survey of a route linking Broken Hill with the groundnut railway to Mikindani (approximately 700 miles). The cost of these projects is not yet known.

Tanganyika: The following lines are either under construction or recently completed: new branch line to Mpanda lead mines (135 miles); short branch line from Managali to Kongwa (16 miles); new line in the Southern Province connecting Linki and Mikindani with the groundnut area (145 miles).

Estimated capital cost: £2,850,000; sixty miles has already been laid.

Northern Rhodesia: Kafue—Salisbury link: air surveys are now being conducted by the Directorate of Colonial Surveys from its base at Lusaka.

Nigeria: Improvements and extensions to the existing railway system in connection with plans for economic development in Nigeria are under study, but no decisions have yet been taken by the Government on extension of the line.

Sierra Leone: A recent survey report has recommended the realignment of the railway to give better running at lower cost. The realignment of the 126 miles from Freetown to Bo, using existing rails, is estimated to cost £700,000, or £550,000 if earth-moving machinery (costing £1,000) were available. Realignment between Bo and Hangha would cost a further £180,000. The report is under consideration by the Government.

Gold Coast: No extension of the track is at present planned.

Removal of Railway Equipment in Austria

Sir Ernest Graham-Little (London University—Ind.) on December 6 asked the Secretary of State for Foreign Affairs whether, in view of the terms of the Allied Control Agreement for Austria, he would make a statement on the requisitioning and removal by the Russians of 5,000 railway trucks and 500 engines in Austria.

Major C. P. Mayhew (Parliamentary Under-Secretary of State for Foreign Affairs), in a written answer, stated: On October 22 officials of the Austrian railways were summoned to the Soviet headquarters and ordered to deliver 5,575 passenger coaches and wagons and 540 locomotives to the Soviet authorities on the grounds that they were "war booty." Some of the rolling stock and locomotives were to be repaired before delivery. The Austrian Government protested to the Soviet authorities against these orders, maintaining that, unless captured in actual military operations, rolling stock is not generally considered to be liable to seizure as "war booty," and also that the effect of the orders was bound to be harmful to the Austrian economy.

As the Soviet authorities refused to discuss the matter, the Austrian Government asked for the intervention of the Allied Council. At the meeting of the Allied Council on November 26 the Soviet High Commissioner adopted the attitude that this matter was sofely the concern of the Soviet authorities.

Major Mayhew was not prepared to accept the proposal by the High Commissioners of the Western Powers that, in view of the serious effects of the removal of so much railway equipment from Austria and of the responsibilities under the control agreement of the four Allies for the reconstruction of the Austrian economy, the matter should be discussed by a quadripartite agency before any further action was taken. It is, of course, clear that, whatever may be the rights and wrongs of the Soviet claim—and this claim has never been justified in discussion with the other Allies—the manner in which the Soviet has acted is contrary to the spirit of the control agreement, and must be harmful to the Austrian economy, which that agreement was designed to protect.

Notes and News

Restoration of Services in France.—Because of the improved coal situation in France, most of the services cancelled on November 31 were restored on December 20.

Docks Accountant Required.—The Docks & Inland Waterways Executive invite applications from qualified accountants for the appointment, at Cardiff, of docks accountant (South Wales Docks). See Official Notices on page 735.

Inspector of Works Required.—Applications are invited from qualified candidates for the post of inspector of works, Nigerian Government Railway, for one tour of 18 to 24 months in the first instance. See Official Notice on page 735.

Senior Draughtsman (Engineering) Required.—Applications are invited by the East Africa Railways & Harbours from qualified candidates for the post of senior draughtsman (engineering) for two to four years, with prospect of permanency. See Official Notices on page 735.

British Railways, Southern Region, Lecture & Debating Society.—A paper entitled: "Some Examples of Suburban Traffic Operation" will be read by Mr. C. F. Klapper, Assistant Editor, *Modern Transport*, before British Railways, Southern Region, Lecture & Debating Society, on January 6. The meeting will be held at the Chapter House, St. Thomas' Street, London Bridge, at 5.45 p.m.

International Railway Conference in Morocco.—Delegates of the railway administrations of France, Italy, Portugal, Spain, Switzerland, French Morocco, Spanish Morocco, and Tangier attended a conference held at Marrakesh, Morocco, from December 8-10, to discuss international railway problems of the countries and territories concerned. The reintroduction of the pre-war Paris—Casablanca express was one of the main topics of the conference.

Locomotive Construction at Gorton Works.—Since 1939, when the last of an order for fourteen class "J50" 0-6-0 tank engines was completed for the L.N.E.R., Gorton works, once the locomotive building centre of the former Great Central Railway, has been dealing only with locomotive repairs. Furthermore, the works were kept busy on Government contracts during the war. Now, after a lapse of nine years, engines are being built at Gorton and an order for ten Class "B1" mixed-traffic locomotives is in hand. The engines will be numbered 61340-61349 inclusive, three being due for completion this year and seven in 1949. The first of the series, No. 61340, already has been put into traffic.

British Insulated Callender's Construction Co. Ltd.—British Insulated Callender's Cables Limited has announced the formation of a wholly-owned subsidiary to take over the activities of its civil engineering and cable contracts departments. The new company will be known as British Insulated Callender's Construction Co. Ltd. It will begin operations on January 1, and will have its headquarters at Bical House, Bloomsbury Street, London, W.C.1. It will undertake contracts for cable laying, overhead line construction, and electric traction overhead equipment; also for radio masts and towers and Callender-Hamilton bridges and aircraft hangars. Existing local contract establishments of the parent company throughout Great

Britain will be transferred to the new company. Contract offices abroad will, in general, also be so transferred, except that in India and Pakistan, and in South Africa, the new company will operate through the parent company's existing establishments. The parent company states that British Insulated Callender's Construction Co. Ltd. will be in a position to undertake contracts of any magnitude in any part of the world.

Liverpool Overhead Traffics.—For the week ended November 28, Liverpool Overhead Railway receipts at £2,881, showed an increase of £163 over those for the corresponding period of last year and brought up the aggregate to £134,925, so that total traffics to date, now show an increase of £93 over 1947. During the previous three weeks of November, traffics amounted to £2,844 at November 7, £2,723 at November 14, and £2,795 at November 21.

Christmas Trees at Scottish Stations.—In view of the success of the special appeal on behalf of hospitals and charitable organisations during the last few years, the Railway Executive (Scottish Region) arranged that this year Christmas Tree displays again would be featured at principal Scottish stations. At Glasgow Queen Street and Central Stations the displays were opened on December 7 by the Lord Provost of Glasgow. That at Edinburgh Waverley was opened on December 9 by the Lady Provost of Edinburgh. On December 10 displays were opened at Dundee Tay Bridge and Aberdeen Joint Stations by the respective Lord Provosts. Facilities are available for the reception of gifts of cash, toys, and other parcels, which will be distributed among hospitals and other charities.

Southern Region Staff Conference at Ashford.—All grades of staff of the Eastern Section, Southern Region, British Railways, met in the Drill Hall, Ashford, on December 8, when Mr. John Elliot, Chief Regional Officer, presided at the second of a series of conferences organised in accordance with a policy of "talking things over" with the staff. The first conference of the series was reported in our January 23 issue. Mr. Elliot was supported by heads of departments and principal chief assistants and invited suggestions for improved working and better service.

Humber Ports Transfer.—The British Transport Commission announces that, as from January 1, 1949, the functions of administration of the ports of Hull, Grimsby, and Immingham will be transferred from the Railway Executive to the Docks & Inland Waterways Executive.

Peruvian Corporation.—The directors of the Peruvian Corporation announce that they have been advised by cable that the Peruvian Government has sanctioned an increase of approximately 25 per cent. in the tariffs of the Central Railway, other than for carriage of foodstuffs and passenger fares.

Boddam Branch Line Closing.—As from January 1, 1949, the Boddam branch line, Aberdeenshire, will be permanently closed. Freight train services were withdrawn in November, 1945, and a special motor lorry service was introduced, based on Ellon. It is announced by the Railway Executive that, as from the New Year, collection and delivery services similar to those operating in other rural districts will be available in the area previously served by the Boddam branch.

Brockhouse Profits Increased.—The net profits of J. Brockhouse & Co. Ltd. and its subsidiaries for the year ended September 30 last amounted to £316,484 as compared with £152,886 for the previous year. The dividend on the ordinary stock is maintained at 20 per cent. by a final payment of 12½ per cent., and, after placing £5,000 to staff superannuation fund, there remains £437,264 to be carried forward, £49,709 of which is applicable to subsidiaries.

Heenan & Froude.—The consolidated trading profits of Heenan & Froude Limited for the year ended August 31, 1948, which included for the first time the results of W. G. Bagnall Limited, were £209,157, against £103,881 for the previous twelve months. The net profits of the group were increased from £72,200 to £183,874 before charging £111,227 for tax. The distribution on the ordinary shares of the parent company is maintained at 15 per cent. Orders at the present time are in excess of £3,500,000. The increase in the volume of business has restricted the margin of current resources and the board proposes to strengthen the capital of the company during the coming year if opportunity offers.

Society of British Paint Manufacturers Limited.—The annual general meeting of the Society was held at the May Fair Hotel, London, on December 6, with Mr. N. M. Hadfield in the chair. Four members of the council, Messrs. C. A. Carter, W. J. Darby, C. G. Heywood and H. Leigh, were elected again, and Mr. C. A. F. Hastilow was elected as a new member. Mr. C. R. Petrie was elected President of the Society at a council meeting held later the same day.

East Kent Road Car Company.—After providing for income tax, £120,000 against £140,000, and £70,278 for depreciation, against £49,900, the net profit at £327,721 showed an increase of £66,796. An amount of £250,000 has been placed to general reserve, and £99,692 is carried forward, as compared with £90,996 for the previous year. A final ordinary dividend is recommended of 10 per cent., with a bonus of 10 per cent., which again makes 25 per cent. for the year.

Transport Tribunal Sittings.—The Court of the Transport Tribunal will sit on January 25, February 22, March 22, April 26, May 24, June 21, July 19, October 18, November 22, and December 20, 1949, to hear applications in connection with exceptional rates; and on February 1, May 3, July 26, and October 25, 1949, to hear applications in connection with classification of merchandise, and applications as to reductions to be made from standard charges where damageable merchandise is carried under owner's risk conditions. Printed copies of the procedure to be followed in any of the applications may be obtained from the Office of the Tribunal, Wellington House, 125-130, Strand, London, W.C.2.

T.I. Aluminium Company.—Tube Investments Limited has formed a new company, T.I. Aluminium, to co-ordinate and pool the administrative, technical, research, and marketing resources of the aluminium division of the group. The companies involved are Reynolds Light Alloys Limited, with works at Redditch and Tyseley, Birmingham; Reynolds Rolling Mills Limited, with works at Oldbury; and the South Wales Aluminium Company, with works at Resolven, Glamorgan. The range of products handled by T.I. Aluminium, which began trading on December 1, covers aluminium and aluminium alloy, ingot, slabs, billets, sheet, strip, tubes, and extrusions. Sales and technical enquiries regarding all these products are dealt with at the head offices at Redfern Road, Tyseley, Birmingham.

John I. Thornycroft & Co. Ltd.—At the annual general meeting on November 17, Sir John E. Thornycroft, Governing Director & Chairman, speaking of the commercial vehicle business of the company, said that the output for the year was slightly less than for the previous twelve months, owing to difficulties in obtaining materials. Exports totalled 33 per cent. of the output in value, making 38 per cent. since January 1, 1946, while undelivered orders in progress for current types of chassis would utilise all the material allocations they expected to re-

Southern Region Staff Conference

At the Drill Hall, Ashford, on December 8, Mr. John Elliot, Chief Regional Officer, held a conference of all grades of Eastern Section, Southern Region, staff, and in the photograph reproduced above is seen listening to Mr. M. Clancy, Foreman Ticket Collector, London Bridge. On the right of Mr. Elliot is Mr. O. V. Bulleid, Chief Mechanical Engineer, and on his left, Mr. S. W. Smart, Superintendent of Operation (see paragraph above)

OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

RUSTON & HORNSBY DIESEL LOCOMOTIVES, 4 wheel, chain driven, 24 in. gauge, 3-speed gear box, forward or reverse, with Lister 2-cyl. vertical water-cooled engine, 600 r.p.m.
Two 20-h.p.: Overall dimensions, 8 ft. 6 in. long, 3 ft. 2 in. wide, 6 ft. 4 in. high, with driver's cabin 3 ft. 8 in. × 3 ft. 2 in. × 4 ft. 8 in high.
Three 10 h.p.: Overall dimensions, 9 ft. long, 3 ft. 2 in. wide, 5 ft. high. Open type.
Condition equal to new, ready for immediate use.
May be inspected at our works.
COX & DANKS LIMITED,
Plant & Machinery Dept.,
SCAPA WORKS, NEATH, GLAMORGAN.
'Phone: NEATH 2205.

RAILWAY MAINTENANCE PROBLEMS. By H. A. Hull (late District Engineer, L.M.S.R.). Valuable information. With much sound advice upon the upkeep of permanent way. Cloth, 8½ in. by 5½ in. 82 pp. Diagrams. *5s. By post 5s. 3d.*

RAILWAY SIGNALLING AND COMMUNICATIONS INSTALLATION AND MAINTENANCE. A practical guide, especially intended to help Signal Inspectors, Installers, Fitters, Linesmen, Draughtsmen, and all concerned with installing and maintaining Signal, Telegraph, and Telephone Equipment. 416 pp. Many illustrations. Cloth, 8s. *By post 8s. 6d.*

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following post:—

SENIOR DRAUGHTSMAN (ENGINEERING) required by the East African Railways and Harbours for 2 to 4 years, with prospect of permanency. Salary £710 a year, rising to £810 a year. Free passages and quarters. Superannuation fund. Candidates must have a sound knowledge of engineering works and building construction; and of the design of structural steel and reinforced structures. A knowledge of railway yard layout an advantage. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/23736 (3D) on both letter and envelope.

THE DOCKS AND INLAND WATERWAYS EXECUTIVE invite applications from qualified accountants for the appointment, at Cardiff, of Docks Accountant (South Wales Docks). Applicants must have had sound accounting experience in a large undertaking and be familiar with modern machine accounting and costing methods. The salary for the post is within the range £1,000-£1,300 per annum. The candidate selected will, where eligible, be expected to join a Contributory Superannuation Scheme and in this respect to comply with whatever provisions are decided upon later for the Executive's staff as a whole. Applications stating age, qualifications, details of past experience, present position and remuneration, should be sent to the SECRETARY, DOCKS AND INLAND WATERWAYS EXECUTIVE, 22, Dorset Square, London, N.W.1, not later than January 10, 1949.

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following post:—

INSPECTOR OF WORKS required by Nigerian Government Railway (Capital Works), for one tour of 18 to 24 months in the first instance. Fixed salary according to age and experience, between £600 and £800 a year, including expatriation pay. Outfit allowance £60. Free first class passages. Candidates, under 40, must have sound knowledge and experience of general building construction and be capable of setting out works and preparing requirements schedules from a plan. A knowledge of simple costing procedure and ability to organise and control labour is essential. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/24338/3D on both letter and envelope.

ENGINEERING CASTINGS

MACHINE Tool Foundry has spare capacity for floor moulded castings up to 3 tons each, cored or otherwise, and 200 lb. each machine moulded.—Box 231, *The Railway Gazette*, 33, Tothill Street, Westminster, S.W.1.

TRANSPORT ADMINISTRATION IN TROPICAL DEPENDENCIES. By George V. O. Bulkeley, C.B.E., M.I.Mech.E. With chapters on Finance, Accounting and Statistical Method. In collaboration with Ernest J. Smith, F.C.I.S., formerly Chief Accountant, Nigerian Government Railway. 190 pages Medium 8vo. Full cloth. *Price 20s. By post 20s. 6d.*

ceive during the next 15 months. During the year they had obtained an order from the South African Railways, amounting to approximately £634,000, for special types of road vehicles. At a subsequent extraordinary general meeting a resolution was passed increasing the authorised capital of the company to £1,050,000 by the allocation of 300,000 new ordinary shares of £1 each.

Railway Students' Association.—Arrangements have been made for the Railway Students' Association, London School of Economics & Political Science, to visit the London Transport Executive Lots Road power station on Fridays, January 7 and 14, and Wednesday, January 19, at 6 p.m.

Organisation of Large Scale Activities.—A series of lectures, in which the organisation of a number of undertakings will be described, has been arranged by the Institute of Public Administration. The lectures will be given at Livingstone Hall, London, S.W.1, at 6.15 p.m. Transferable sessional tickets at 21s. and tickets for individual lectures at 2s. 6d. may be obtained from the Institute at 18, Ashley Place, Westminster, S.W.1. The series will include: January 4, Introductory Address by Mr. J. R. Simpson, Director of Organisation & Methods, H.M. Treasury; January 10, "The Iron & Steel Federation," by Mr. R. M. Shone, Economic Director & Secretary; January 24, "The Post Office," by Mr. A. Hibbs, Assistant Secretary; January 31, "The British Transport Commission," by Mr. Miles Beevor, Chief Secretary & Legal Adviser; April 5, "The Organisation of Large-Scale Activities," by Sir Charles Renold, Chairman. British Institute of Management.

Transport Services Limited.—In 1947 the total consolidated income of Transport Services Limited was £537,126 as compared with £232,071 for the previous year. Depreciation absorbed £114,926, against £81,109, taxes took £95,028, against £69,519, and provision in respect of sums in dispute with the Ministry of Transport accounted for £11,354. The consolidated net profit was £314,640, against £71,520, plus £556 transferred from general reserve, and £90,447, against £65,377, brought in. The ordinary dividend of 8 per cent. compares with 15 per cent. including a bonus of 5 per cent. in the previous year, which leaves £381,859 to be carried forward, £320,865 of which is retained by subsidiaries. Apart from the initial cash payment of £2,000,000 by the British Transport Commission the ultimate price to be received depends on the valuation of assets and goodwill. When these valuations have been completed the directors will call a meeting of shareholders to liquidate the company.

Canadian Pacific Railway Dividend.—At a meeting of the board of directors held on December 13, a final dividend of two per cent. on the preference stock in respect of 1948 was declared payable on February 1, 1949.

Christmas Tree at Sheffield (Victoria), Eastern Region.—The Lord Mayor of Sheffield, Alderman W. E. Yorke, officially illuminated a Christmas tree at Sheffield (Victoria) Station on December 9. Collections taken at the tree are devoted to a children's seaside holiday fund and other causes.

Tees-side Chamber of Commerce.—The Tees-side Chamber of Commerce has been engaged in expanding its membership, and has taken in the South West Durham area, of which Bishop Auckland is the centre. The chamber membership now totals 300 firms, which entitles it to a permanent seat on the executive council of the Association of British Chambers of Commerce. Mr. T. H. Summerson, President of the Tees-side Chamber of Commerce, has been appointed by the council to be its representative on the executive council of the Association.

Railway Boxing Championship.—A British Railways National Boxing Championship is being arranged through the Railway Joint Advisory Council for Welfare, and under the auspices of the Railway Executive Amateur Boxing Association. Eliminating contests will commence on January 22 and finish by February 28, and entries must be submitted by January 8. The quarter finals are to be concluded by March 16, so that the semi-finals and finals may take place in London on March 29. Contests will be held at each of the eight recognised weights, and trophies will be awarded to the winners and runners-up. The championship is part of a general scheme of the Advisory Councils for developing social and recreational activities throughout the railways; one of its objects will be to maintain the spirit of competition between the Regions.

Hangchow—Chuchow Through Service.—A through service between Hangchow and Chuchow on the 722-mile Chekiang—Kiangsi railway, mentioned in our October 8 issue, began on December 4. It had been held up by the construction of a temporary bridge at Changshu, south of Nanchang.

Associated Lead Manufacturers.—From January 1, 1949, the following eight companies, Cookson Lead & Antimony Co. Ltd., Locke, Lancaster & W. W. & R. Johnson & Sons Ltd., Walkers, Parker & Co. Ltd., Foster, Blackett & James Limited (Lead Departments only), Librex Lead Co. Ltd., London Lead Oxide Co. Ltd., A. T. Becks & Co. Ltd., and Oidas Metals Co. Ltd., will no longer use their individual names, but will trade under the single name of Associated Lead Manufacturers Limited. Under the new organisation there will be three main area offices, at London, Newcastle and Chester, the head office also being in London; and ten factories for the manufacture of lead and lead products, also antimony and tin and their products, and many special alloys.

The Railway Club Annual Dinner.—The annual dinner of the Railway Club was held at Pinoli's Restaurant, Wardour Street, London, W.1, on Friday last, December 17. The President, Mr. Kenneth Brown, occupied the Chair, supported by the Vice-President, Mr. Charles E. Lee, and some 35 members and guests were present. In proposing the toast of the Railway Club, the President recalled that it was founded in 1899, the year in which the last main line, the Great Central Railway, reached London. Great changes had occurred since that time, and almost the whole railway system of the country was now under national ownership. Despite fears to the contrary, interest in railways had increased, and there was no danger that the club would fail through diminish-

ing enthusiasm in the subject. The toast of the Officers and the Executive Committee was proposed by Mr. M. D. Greville, and responded to by Mr. D. S. M. Barrie. The toast of "Our Guests" was given by the Vice-President, and Mr. H. G. Davis responded.

Popularity of L.M.R. Films.—The six new 16-mm. colour films dealing with holiday resorts, railways, and important British industries, which were released a month ago by the London Midland Region of British Railways, have proved so popular that 32,000 persons already have seen them. The films are loaned free of charge to schools and clubs throughout the country.

Buenos Aires Central Railway.—It is announced that on December 30, meetings of Buenos Aires Central Railway debenture holders will be called to consider resolutions authorising the trustees to release the company from its obligation to pay: interest on the 4½ per cent. debentures from July 1, 1940, to July 1, 1948; and interest on the 5 per cent. debentures from October 1, 1943, to October 1, 1948, and capital premiums payable under the terms of the schemes of September, 1934, June, 1936, and May, 1938.

Euston Station Strike Ended.—The unofficial strike at Euston Station, London Midland Region, which has delayed parcels traffic for the past twelve days, ended on December 17. It was stated that the Railway Executive would consider representations with regard to any grievances which might be made by the union official over whose resignation the stoppage began, and an assurance was given that there would be no victimisation of the men. A total of 420 men were on strike when the stoppage ended and about 230 members of the platform staff did not join the dispute.

Police Training School at Tadworth.—On December 17, Lieut.-Colonel Sir Hugh Turnbull, K.C.V.O., K.B.E., Commissioner of Police, City of London, formally opened the British Railways Police Training School at Tadworth, Surrey, and took the salute at the passing out parade of 36 men and 12 women students who had just completed their course. Afterwards, there was an inspection of the school, which we hope to describe in our December 31 issue, and this was followed by an exhibition of self-defence methods. Sir Hugh Turnbull, who was introduced by Mr. W. B. Richards, Chairman of the School Committee and Chief of Police, London Midland Region, addressed the students. Other speakers were Mr. G. V. Franklin, Commandant of the School and formerly in charge of the Metropolitan Police Training School at Peel House, and Mr. V. M. Barrington-Ward, Member of the Railway Executive, who proposed the vote of thanks.

Forthcoming Meetings

December 31 (*Fri.*).—Royal Society of Arts, John Adam Street, Adelphi, London, W.C.2, at 2.30 p.m. Dr. Mann Juvenile Lecture: "Model Railways," by Mr. W. J. Bassett-Lowke.

January 3 (*Mon.*).—Institute of Transport, Metropolitan Section, at Livingstone House, Broadway, S.W.1, at 5.30 p.m. for 6 p.m. "The Effect of Nationalisation on Air Transport," by Mr. J. W. S. Brancker.

Railway Stock Market

Reinvestment of the £20,700,000 payout distribution made to junior stockholders of the Buenos Ayres Great Southern and Buenos Ayres Western companies is helping Stock Markets to close the year on a firm note. Although not holding best levels, British Funds are again higher on balance. The market is talking of another gilt-edged issue early in 1949, and of the possibility that British Transport may require more money, but so far this is regarded as mere guesswork. British Transport 3 per cent. stock (1978-88) has moved up to close on par and is now being quoted at 99⅛. Since it was issued, this stock has been down to 93¾, and was up to 100⅝ towards the end of last month, before it went "ex" the interest payment. Earlier in the year, there was considerable selling by former railway stockholders who found that the exchange from home rails meant a heavy fall in income, but the bulk of this stock, the issued amount of which is £1,052,401,244, is now held as firmly as other gilt-edged securities. Incidentally, the fact that the 3 per cent. Transport ("Wagon") stock is now quoted at a lower price than the similar dated Electricity stock, is due to the prospect that the bulk of the "Wagon" stock issued to Thomas Tilling after its deal with British Transport, will be sold during the next three months. Nevertheless, taking more than a short view, there is every reason to expect that "Wagon" and Electricity stocks (1968-73) will move in unison at the same level.

Brazilian rails have continued to fluctuate sharply and have lost ground on reports that preliminary discussions may be pending for revision of the Anglo-Brazilian Trade Agreement. The whole question of acquisition by Brazil of the Leopoldina and Great Western of Brazil has been the subject of so many rumours that the stocks must continue to be regarded as carrying a good deal of speculative risk. Prices have shown big fluctuations throughout the year. Leopoldina ordinary have been up to 20½, and down to 8⅞, and are now 10. The preference stock has had extreme levels of 61 and 28 and at the moment is changing hands around 35. Among the Leopoldina debentures, fluctuations in the 4 per cents. have been between 54 and 85, comparing with the present level of 80½. Opinion is that the debentures are probably a much less speculative purchase than the junior stocks.

Great Western of Brazil shares have had highest and lowest levels of 113s. 1½d. and 60s. and the current price is 103s. 9d. San Paulo ordinary stock, now at 156, has shown extremes of 196½ and 150 in 1948, the big set-back from the peak price being due to the knowledge that the final settlement of compensation from Brazil may not be made for a long while. Recent buying of Canadian Pacifics has been a feature of the market, carrying the price to over 23, based on growing confidence that the dividend is likely to be maintained owing to increased income received by the company from its investment holdings. Beira Railway bearer shares have provided an illustration of the danger of placing reliance on market estimates of break-up values and take-over terms. Based on the latter, the price shot up to over 65s. earlier this year, but since the compensation terms secured by negotiations with Portugal have been announced, there has been a heavy fall to 46s. 3d.

Iron and steel shares have remained a quiet market, awaiting further news of the non-steel assets of individual companies to be reprieved from nationalisation. Shares of locomotive building and engineers generally changed hands around the same levels as a week ago.

Traffic Table of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffics for week: Total this year	Traffics for week: inc. or dec. compared with 1946/47	No. of week	Aggregate traffics to date: Total 1947/8	Aggregate traffics to date: Increase or decrease
South & Central America	Antofagasta...	811	12.12.48	£ 60,610	+ £ 9,988	50	£ 2,754,980	+ £ 540,200
	Bolivar	174	July, 1948	$28,960	− $69,357	30	$471,287	− $301,893
	Brazil	—	—	—	—	—	—	—
	Cent. Uruguay	970	6.11.48	32,712	+ 2,978	18	595,105	− 7,652
	Costa Rica	281	Oct., 1948	32,228	− 2,750	18	143,847	+ 15,796
	Dorada	70	Oct., 1948	32,756	+ 5,956	44	273,241	− 27,659
	G.W. of Brazil	1,040	11.12.48	44,900	− 300	49	1,657,400	− 26,500
	Inter. Ctl. Amer.	794	Oct., 1948	$955,810	− $35,968	44	$11,070,758	+ $167,793
	La Guaira	22¾	Nov., 1948	$109,836	+ $20,483	48	$1,158,353	− 86,894
	Leopoldina	1,920	11.12.48	50,191	− 10,481	49	2,756,681	− 496,931
	Midland Uruguay	319	Sept., 1948	19,608	+ 3,123	12	67,355	+ 16,721
	Nitrate	382	15.12.48	14,364	+ 2,353	50	300,074	+ 81,887
	N.W. of Uruguay	113	Sept., 1948	5,686	− 1,213	12	16,335	+ 1,989
	Paraguay Cent.	274	10.12.48	G$126,915	+ G$49,141	23	G$2,387,867	+ G$936,009
	Peru Corp.	1,059	Nov., 1948	201,617	+ 56,049	21	954,690	+ 112,982
	Salvador	100	Sept., 1948	c£2,000	+ c4,000	13	c247,000	+ c12,000
	San Paulo	153½	—	—	—	—	—	—
	Taltal	156	Nov., 1948	6,790	− 1,290	22	38,520	+ 6,170
	United of Havana	1,301	4.12.48	46,164	− 9,489	22	975,625	− 391,822
	Uruguay Northern	73	Sept., 1948	1,072	+ 52	12	3,308	+ 111
Canada	Canadian National	23,473	Aug., 1948	10,110,000	+ 855,250	35	77,676,250	+ 5,854,000
	Canadian Pacific	17,037	Oct., 1948	8,613,250	+ 1,159,000	44	72,510,000	+ 6,823,500
Various	Barsi Light†	202	Oct., 1948	26,610	+ 12,187	31	181,702	+ 7,717
	Beira	204	Sept., 1948	123,677	− 3,737	52	1,410,947	+ 243,048
	Egyptian Delta	607	30.10.48	19,211	+ 1,455	26	328,731	+ 31,899
	Gold Coast	536	Oct., 1948	217,730	+ 118,047	31	1,401,622	+ 374,708
	Manila	—	—	—	—	—	—	—
	Mid. of W.Australia	277	Oct., 1948	31,467	+ 8,707	18	113,713	+ 25,391
	Nigeria	1,900	Sept., 1948	412,268	+ 62,429	25	2,617,491	+ 531,086
	Rhodesia	2,445	Sept., 1947	643,980	+ 102,833	52	6,787,603	+ 612,938
	South Africa	13,347	20.11.48	1,426,043	+ 75,147	34	44,711,345	+ 2,604,119
	Victoria	4,774	June, 1948	1,358,791	+ 248,144	52	—	—

† Receipts are calculated @ 1s. 6d. to the rupee